



Docket No.: CL001196
Serial No.: 09/820,003
Inventors: MERKULOV, Gennady et al.
Title: ISOLATED HUMAN RAS-LIKE PROTEINS...

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1 AAGCGATAGC TGAGTGC GGCCTGCTGAT TGTGTTCTAG GGGACGGAGT
51 AGGGGAAGAC GTTGTCTCTC CCGGAACAGC CTATCTCATT CCTTTCTTTC
101 GATTACCCGT GGC GCGGAGA GTCAGGGCGG CGGCTGCGGC AGCAAGGGCG
151 GCGGTGGCGG CGGCGGCAGC TGCAGTGACA TGTCACGACAT GAATCCCGAA
201 TATGATTATT TATCAAGTT ACTTCTGATT GGCGACTCAG GGGTTGGAAA
251 GTCTTGCCCT CTTCTTAGGT TTGCAGATGA TACATATACA GAAAGCTACA
301 TCAGCACAAAT TGGTGTGGAT TTCAAAATAA GAACTATAGA GTTAGACGGG
351 AAAACAATCA AGCTTCAAAT AGAGTCCTTC AATAATGTTA AACAGTGGCT
401 GCAGGAAATA GATCGTTATG CCAGTGAAAA TGTCAACAAA TTGTTGGTAG
451 GGAACAAATG TGATCTGACC ACAAAGAAAG TAGTAGACTA CACAACAGCG
501 AAGGAATTTG CTGATTCCCT TGGAAATCCG TTTTGGGAAA CCAGTGCTAA
551 GAATGCAACG AATGTAGAAC AGTCTTTCAT GACGATGGCA GCTGAGATTA
601 AAAAGCGAAT GGGTCCC GCAACAGCTG GTGGTGCTGA GAAGTCCAAT
651 GTTAAAATT AGAGCACTCC AGTCAAGCAG TCAGGTGGAG GTTGCTGCTA
701 AAATTGCGCT CCATCCTTTT CTCACAGCAA TGAATTTGCA ATCTGAACCC
751 AAGTGAAAAA ACAAATTCG CTGAATTGTA CTGTATGTAG CTGCACTACA
801 ACAGATTCTT ACCGTCTCCA CAAAGGTCAG AGATTGTAAA TGGTCAATAC
851 TGACTTTTTT TTTATTCCT TGAACAAGA CAGCTAACTT CATTTTCAGA
901 ACTGTTTTAA ACCTTTGTGT GCTGGTTTAT AAAATAATGT GTGTAATCCT
951 TGTGCTTTC CTGATACCAG ACTGTTTCCC GTGGTTGGTT AGAATATATT
1001 TTGTTTGAT GTTTATATTG GCATGTTTAG ATGTCAGGTT TAGTCTCTG
1051 AAGATGAAGT TCAGCCATT TGTATCAAC AGCACAAGCA GTGCTGTGCA
1101 CTTTCCATGC ATAAAGTTTA GTGAGATGTT ATATGTAAGA TCTGATTTGC
1151 TAGTTCTTCC TTGTAGAGTT ATAAATGGAA AGATTACACT ATCTGATTAA
1201 TAGTTTCTTC ATACTCTGCA TATAATTTGT GGCTGCAGAA TATTGTAATT
1251 TGTTGCACAC TATGTAACAA AACAACGAA GATATGTTTA ATAAATATTG
1301 TACTTATTGG AAGTAAAAA AAAAAAAAAA AAAAAAAAAA AAAAAAAAAA
1351 AAAAAAAAAA AAAAAAAAAA AAAAAAAAAA AAAAAAAAAA AAAAAAAAAA
1401 AAAAA (SEQ ID NO:1)
```

FEATURES:

5'UTR: 1-179
Start Codon: 180
Stop Codon: 699
3'UTR: 702

Homologous proteins:

Top 10 BLAST Hits

		Score	E
CRA 108000024647144	/altid=gi 12728868 /def=ref XP_002675.2 RA...	372	e-102
CRA 18000004923424	/altid=gi 4758988 /def=ref NP_004152.1 RAB1...	332	5e-90
CRA 18000004937406	/altid=gi 131787 /def=sp P05711 RB1A_RAT RAS...	328	1e-88
CRA 18000004952860	/altid=gi 131785 /def=sp P22125 RAB1_DISOM R...	320	3e-86
CRA 18000004995539	/altid=gi 103720 /def=pir D38625 GTP-bindin...	313	3e-84
CRA 18000004967528	/altid=gi 92339 /def=pir S06147 GTP-binding...	297	2e-79
CRA 18000004880958	/altid=gi 464524 /def=sp Q05974 RAB1_LYMST R...	282	9e-75
CRA 18000004908714	/altid=gi 466171 /def=sp P33723 YPT1_NEUCR G...	253	3e-66
CRA 18000005175724	/altid=gi 7497231 /def=pir T33781 hypotheti...	253	4e-66
CRA 335001098696672	/altid=gi 11558649 /def=emb CAC17833.1 (AJ...	251	2e-65

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FIGURE 1A



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BLAST dbEST hits:

	Score	E
gi 12867866 /dataset=dbest /taxon=960...	654	0.0
gi 12097820 /dataset=dbest /taxon=96...	654	0.0
gi 12793758 /dataset=dbest /taxon=960...	624	e-177
gi 12338056 /dataset=dbest /taxon=96...	622	e-176
gi 11977068 /dataset=dbest /taxon=96...	609	e-172
gi 10339840 /dataset=dbest /taxon=960...	517	e-145
gi 10349761 /dataset=dbest /taxon=960...	436	e-120
gi 10997958 /dataset=dbest /taxon=96...	385	e-105
gi 10996533 /dataset=dbest /taxon=96...	381	e-103

EXPRESSION INFORMATION FOR MODULATORY USE:

library source:

From BLAST dbEST hits:

gi 12867866	Fetal brain
gi 12097820	Adrenal gland
gi 12793758	Brain neoroblastoma cell line
gi 12338056	Adrenal gland
gi 11977068	Skin melanotic melanoma
gi 10339840	Uterus leiomyosarcoma
gi 10349761	Skin melanotic melanoma
gi 10997958	Placenta
gi 10996533	Placenta

From tissue screening panels:

Whole brain

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FIGURE 1B





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1 MSSMNPEYDY LFKLLIGDS GVGKSCLLLR FADDTYTESY ISTIGVDFKI
51 RTIELDGKTI KLQIESFNNV KWLQEIERY ASENVNKLLV GNKCDLTTKK
101 VVDYTTAKEF ADSLGIPFLE TSAKNATNVE QSFMTMAAEI KKRMGPGATA
151 GGAEKSNVKI QSTPVKQSGG GCC (SEQ ID NO:2)

FEATURES:

Functional domains and key regions:

[1] PDOC00001 PS00001 ASN_GLYCOSYLATION
N-glycosylation site

125-128 NATN (SEQ ID NO:6)

[2] PDOC00005 PS00005 PKC_PHOSPHO_SITE
Protein kinase C phosphorylation site

Number of matches: 5

1	59-61	TIK
2	97-99	TTK
3	98-100	TKK
4	106-108	TAK
5	122-124	SAK

[3] PDOC00006 PS00006 CK2_PHOSPHO_SITE
Casein kinase II phosphorylation site

Number of matches: 3

1	35-38	TYTE (SEQ ID NO:7)
2	106-109	TAKE (SEQ ID NO:8)
3	127-130	TNVE (SEQ ID NO:9)

[4] PDOC00007 PS00007 TYR_PHOSPHO_SITE
Tyrosine kinase phosphorylation site

30-36 RFADDTY (SEQ ID NO:10)

[5] PDOC00008 PS00008 MYRISTYL
N-myristoylation site

Number of matches: 3

1	21-26	GVGKSC (SEQ ID NO:11)
2	147-152	GATAGG (SEQ ID NO:12)
3	152-157	GAEKSN (SEQ ID NO:13)

[6] PDOC00017 PS00017 ATP_GTP_A
ATP/GTP-binding site motif A (P-loop)

18-25 GDSGVGKS (SEQ ID NO:14)

[7] PDOC00579 PS00675 SIGMA54_INTERACT_1
Sigma-54 interaction domain ATP-binding region A signature

14-27 LLLIGDSGVGKSCL (SEQ ID NO:15)

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FIGURE 2A



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BLAST Alignment to Top Hit:

>CRA|108000024647144 /altid=gi|12728868 /def=ref|XP_002675.2| RAB1,
member RAS oncogene family [Homo sapiens] /org=Homo
sapiens /taxon=9606 /dataset=nraa /length=222
Length = 222

Score = 372 bits (944), Expect = e-102
Identities = 190/222 (85%), Positives = 190/222 (85%), Gaps = 32/222 (14%)
Frame = +3

Query: 129 GGCGSKGGGGGGSCSDMSSMNPEYDYLKLLIGDSGVGKSCLLRFADDTYTESYIST 308
GGCGSKGGGGGGSCSDMSSMNPEYDYLKLLIGDSGVGKSCLLRFADDTYTESYIST
Sbjct: 1 GGCGSKGGGGGGSCSDMSSMNPEYDYLKLLIGDSGVGKSCLLRFADDTYTESYIST 60

Query: 309 IGVDFKIRTIELDGKTIKLQI-----ESFNNVK 392
IGVDFKIRTIELDGKTIKLQI ESFNNVK
Sbjct: 61 IGVDFKIRTIELDGKTIKLQIWDTAGQERFRTITSSYYRGAGHIIVVYDVTQESFNNVK 120

Query: 393 QWLQEIDRYASENVNKLVLGNKCDLTTKKVVDYTTAKEFADSLGIPFLETSAKNATNVEQ 572
QWLQEIDRYASENVNKLVLGNKCDLTTKKVVDYTTAKEFADSLGIPFLETSAKNATNVEQ
Sbjct: 121 QWLQEIDRYASENVNKLVLGNKCDLTTKKVVDYTTAKEFADSLGIPFLETSAKNATNVEQ 180

Query: 573 SFMTMAAEIKKRMGPGATAGGAEKSNVKIQSTPVKQSGGGCC 698 (SEQ ID NO:5)
SFMTMAAEIKKRMGPGATAGGAEKSNVKIQSTPVKQSGGGCC
Sbjct: 181 SFMTMAAEIKKRMGPGATAGGAEKSNVKIQSTPVKQSGGGCC 222 (SEQ ID NO:4)

Hammer search results (Pfam):

Model	Description	Score	E-value	N
PF00071	Ras family	256.4	7.7e-75	2
CE00060	CE00060 rab_ras_like	170.0	3.9e-47	2
PF00634	BRCA2 repeat.	9.9	0.39	1
PF00056	lactate/malate dehydrogenase	3.9	3.4	1

Parsed for domains:

Model	Domain	seq-f	seq-t	hmm-f	hmm-t	score	E-value
PF00056	1/1	13	29 ..	1	18 [.	3.9	3.4
CE00060	1/2	8	64 ..	20	77 ..	86.8	8.9e-23
PF00071	1/2	13	64 ..	1	52 [.	111.9	4.8e-32
PF00634	1/1	57	79 ..	13	35 .]	9.9	0.39
CE00060	2/2	65	140 ..	110	188 ..	81.2	2.9e-21
PF00071	2/2	65	173 .]	85	198 .]	142.4	4.5e-41

FIGURE 2B

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1 TTTTGGGTGT GTGTGTGTGT GTGTGTGTGT GTGCCTTTAC TAGTGACTCA
51 GGTACAGATT TTCTGAGATT TTTTCTCTCC CCTCAAGACA GAATCTTGCT
101 CTGTCGCCCA GGCTGGAGTG CAGTGGCCTC TCGGCCCACT GTAGCCTCCG
151 CCTCCCGGGT TCAAGCAATT TTCCTGCCTC AGCCTCCCGA GTAGCTGGGA
201 TTACAGGCAC GCGCCACCAT GCCTGGCTAA TTTTGTATT TTAGTAGAG
251 ACAGTGTTC ACCATGTTGG CCAGGCTGGT CTTGAATTCC TGACCTCGTG
301 ATCTGTCCGT TTTGGCTCT CAAATCCTG AGATTACAGG CATGAGCCAC
351 CGAGCTGGC CAGTTTTCTG AGTTTTTATT TGAAATCAAA ATAAGCTTTT
401 TTTTTTTTTT TAATGGGCTT TAGAGTCCAG GGTAACGAAC ACTTTTTGGT
451 GCCTATTACT GAACCATTCA GGTATTCTT GGGGTGGTGA CCGTGTTCAT
501 TTCAGAAACC AACATGTTCA TTTCAGAAAC CAAACTCGGG TAACTTTTGA
551 TAAGTTCATC AACTAAGGCC CATGGCAGAA TTTGAGGGCT AAGGGGTGTA
601 ATTAGTGTAT GGGTAGAAAT AAGTGCCTTC TTTCTATATT TTGGCGTTGT
651 AGGAATTTAA AGTGATTCTG CAGTAAGTCT CAGGAGACAA TTTTCTTAGT
701 TCTTAGAAGT TGGGAAGATA ACTTTGGACA ATGTATTACA CTATGCCCTT
751 TGTAATTAATA TAACTCAAGA TAATGTGTTA AAGTTTAGCG GAGATTTAAA
801 TTCCTGAGCT GATTAAAGAG AGCTGTTAAG GCCATAGGTT TTTTAAAAAT
851 GAGTTAATAT TACTCCCAGA AATTGTAGGC ACTATATAGT GATGAATTGC
901 ATATTTTTAT TGCTTATTAT TTTCCAGTCT TGCAGAATGG CTCAGGGTTA
951 GTAGCAACTA AAAGATAATA CATTACAATT CAACCTGAAG GCCGGGACGA
1001 AGGTAGGAAT TGGATTTTAG GCTGGCTCTG GGCTGTGTCC CTCCCATCCA
1051 TGGGATGTGG AGCCATTGAA GGTGTGGGG TCACGATGCA GGTGCTGTCT
1101 CAGAAAGATA CATCCGACTG TGTGTGCAAA TGGGCTGGG CGGAGAAGAG
1151 AGAGAGAGGT AGAGTCCATT TGGAGACTAC TGCAATAGCC AGGCTGACGA
1201 GTTAAGAGCG GGGCACAGTA AGAATGGGAA GAAATCTAAG AAGAAAATGG
1251 TAGTGC GCGG GCGCAACAAT GGACGATGAC CGAACCAGG TGGGGATGGG
1301 TGAGTGACGA GAAGAACC GC TCCGTGCCGT CCAGGGAGCC CCTTGACTTC
1351 CCTTCTGTTT TTAGAGCGGA CGTCTCCTA CCAGCCCCCA ACCAGCGCCA
1401 CCAGGGTGGC GCAAGCCTCA AGCTGGTCAG GTCAGCAACA GCCGCAACGG
1451 AGGCAGGAGC CGACACGCTC GTACCCCGGC CCCCTCCCCG CCCCCGACC
1501 CCCGGCAGTC CCTCCGTTT GACCACTCCC CCCGTCCTT TGCCTCCCCC
1551 GACCCCGAGC CTCCGTCCGC CGCCGGCACC ACCCTCCGCC CCTCTCCGCC
1601 CCTCCCCCG TGGGGCGCTG ACTCGCCCGG CTGCCACGTC TCACTGATGA
1651 CATCACTAGG GCAGCTCGGC CTTAGCCAAT CCGCCAGGGG GAGTCCGAGC
1701 GAAGTCCTAG CCAGCGAGTC AGAGGGGAGG GGAGCAGGGA GGGGCCGAGG
1751 GTGGGGAGGT GAGGGAGTGG GGAATGGGG GGGCGACAAC CCTTCAGGTA
1801 CGCATGCCCC AGAGGCGCGG CGCTTGGCGG GAAGCTGAGT CCTGGCCTTG
1851 CGTCGCACTG TCTGTCTCA GCTCGCTAG CCGCGCTCG GACTCCCTTT
1901 CCCGCGATGC CAGGCGGTGC GGCGCCCTC TGGGCCGTGT AAAGGCCCTT
1951 CGGTCTAAGG CTTCCCTATT TCCTGGTTCT CCGGCGGCCA TTTTGGGTGG
2001 AAGCGATAGC TGAGTGGCGG CGGCTGCTGA TTGTGTTCTA GGGGACGGAG
2051 TAGGGGAAGA CGTTTGCTCT CCCGGAACAG CCTATCTCAT TCCTTTCTTT
2101 CGATTACCCG TGGCGCGGAG AGTCAGGGCG GCGGCTGCGG CAGCAAGGGC
2151 GCGGTGGCG GCGCGGCAG CTGCAGTGAC ATGTCCAGCA TGAATCCCGA
2201 ATAGTGAGTT CAGGAGAGCA CCGTCCGCT GGTCCGTGG GCCAGCTTGG
2251 GGGATCTTAA AGGGTTCGAG GAGGGTTGGG GCAGAAGTCG GGGCATCGGC
2301 TGGGGTGAGG CGAGGTGAT GGGTCAGGAG AGGCTGGCGG CCGGGAGTCG
2351 GGCCCCATTG TCTGACGCGG AGGGGCGGCC GCGCGGGGGA GGGGTGCGGC
2401 CGGAGGGGTG AGCCGCCCGG GCCTGGACCG GGTGAGTTA GAGGGCCTGA
2451 CTGCGGGGCG GGTGCTGAGG AAGCCTGCCG AGGGGCTGG GCGGTGTGA
2501 AGGGGTATCT TCTCTCGGAG GCAGTGAATT TTGAAGGAGG ACTTGTCTCT
2551 AAGGGGAGGG GATGGGTGG GAGAGCCCTT CTAGAGGGCA CTGTCAGACC
2601 CTGCGCCCGC ACTCTGCGGA GCTGTCAGGA TCTTCGGGGT AGAAACCAGC
2651 TTTACTTGTA AATCTGAGC TTGTTGGGTC TCTCTCCTT CATCCTCCCC
2701 GCCAGGTTTC AGGTAATATG GATGCTTTTC GGGACTGCGT GGGATTGAGG
2751 GGAATGAGTA GATGGTGAGA AGCAACTGAA CATTTATTAG TTCTCTTTT
2801 GAGTTGTGTC TTGGAGGAGT TGTTAAGAG CTCGCCGGT CCATTGCCCT
2851 CCTATAAAAA CCTGGGCATT TGTGAGAATT TTGTTTTTT TTTTTTAAA
2901 GAGGACACCT AAGTCATTT GTCTTCTGTG GGTCAAGGGA AAAAAAAA
2951 ACTAAAGCCA AGAAATGTCT TTTTGATACT CGCAGATTAA AGGAAGCTTG
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FIGURE 3A

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3001 CTGTCAAGTT GAAAGAGAAA CGAACGGGAC CTATGATAGA TCTGTATGTA
3051 GGTTTTGGAT TACCTGCTTG GATGCTTGCA GATAGGGAAT GAGGTTCCAT
3101 GACGTGTCAT GAAAAGTTAA TGCAATTTCTT TTTCTTGCTT ACTCAAGAAG
3151 TCACCACAGC AGATGTGACA CACCTGGCAC CTTTCCTGGG AACTGGTGTT
3201 CACTTCCCTT GGGTAGAGTT TGTGGGCTC TCCTCAATGG CCCTTTAAAA
3251 ATTTCTCTTA CAGTTTACAT GCATGTAAG TAATGAATAA TTGGAAGAGA
3301 CCGAATTGGT ATTCCTTTTC AGTGCAAAAG GCCTTTGAGG GATGGGGGAA
3351 AATCAGTATT TGTTGTAATA GTTGAGTTTA TTTGCTGGTT TGGTCAATTA
3401 CTGCTAGACA TTTTCCCCTA AAAGGTCCAC CCACCAGTTT AGCTGACTGT
3451 CATATGTGTG TCACATGGCT CTTGCAAAAT GCTTACAAGT TTGTAATAG
3501 TGTGGCTTGA AGCTGAAATC TTTTGCACTA AACAGAAACC GTAGTATTTT
3551 ATTAGAATTT CATGCTTTAG AAGTTGAGGG TAGTGTTCCT GTAGTGACAT
3601 TTGCTGTGTT GACAGTTTAA AAAAATTTTT TTTTCAAGGG CTCCAAGGAC
3651 AAAGTTGGTT TTGCACAGTT GAACGGAGGT GAACCTGAGG TTCTTAATTT
3701 AGTAGTTTTC TTGGTAACAA TAAAGAACAT GGAATTTACTG CTTTATCGAG
3751 GTTTATAGAC CTCTACTGTT CAGGAAATTT TCTGAATTTG CTATATATAT
3801 GTTTATTAGT GTAAATAAAT CTTCAAGATT AGTTGAGAAC TTTGACAAGT
3851 TACTCAGCCT CTGAATTTTT TTTCCCTTTT GTAAAATAGG ATAATTGGAG
3901 TCATTATTCC TGTCAGGGTA GTGGTGAAAT TCAAATGTAT ATAAAAGAAT
3951 TTGAAAAACT GTGTGAGCAT TCTTCAGGTG GTATGCATCA TTTTCATGAA
4001 AGGCATTCTA TTAGTACCAG GATTTAGGAA TATAATCCTT GCGCTTAAGA
4051 AGTTTAGATA TAGGCCAGGC GCGGTGGCTC ACCTCAGTAA TCCCAGCACT
4101 TTGGGAGGCC GAGGCGGGCG GATCCCAGG TCAGGAGATC GAGACCATCC
4151 TCGGTAACAC GGTGAAACCC CGTCTCTACT AAAAATGCAA AAAAAATAGC
4201 CGGGCGTGGT GGTGGGCACC TGTAAGTCCA GCTACTCGAG AGGCTGAGGC
4251 AGGAGAATGG CGTGATCCCG GGAGGTGGAG CTTGCAGTGA ACCAAGATCT
4301 GGCCACTGCA CTCCAGCCTG GACGACAGAG CAAGACTCCG TCTCAAAAAA
4351 AAAATTATTT ATTGTTTTGA GACGGAGTTT CAATCTTGTT GCCCAGGCTG
4401 GAGTGCAATG GCGCAAATCT CCTCTCACC GACCTCCGC CTCCTGGGTT
4451 CAAGTGATTC TCCTGCCTCA GATTCCCGAG AAGTTGGGAT TACAGGCATG
4501 TGCCACCACT CCCGGCTAAT TTTGTATTTT TGGTAGAGAC GGGGTTTCTC
4551 CATGTTGGTC AGGCTGGTCT CAACTCCCG AAGTGATCCG CCGCCTCAG
4601 CTTCCCAAAG TGTTGGGATT ACAGGCGTGA GCCACCGCGC CCGGCAGAAA
4651 TAGATTTTAT ACATGTCAA TACCAGTAGA TATAGCAAAT TCCAGATGTG
4701 TGGCATGGAT GAGAGCAACA AGATTTTAGG GGGATGGTGG GTTGTGGTTG
4751 GCTATCTGGG TTTTGAAGA CTTTATAGAA GAGAGACCTG AAAGGGATT
4801 ATCAGCAATT AGATTGGAG GAACAGAGGG AGTGACTAGG AATTTTCAAG
4851 GGGGAGAAGA AGGAGGAATG GCTCATAAAT GACAAGGACA GTAATAAGTA
4901 AATACGGTGT CAAATCATCC TTTCTTTTGA AGACTAATGA CCTCAAAGGG
4951 ATCAAACCCA GAAACAGTTT TTATATTTTT TCTGGGATCA AATACATGGG
5001 TATCTGGCCT ACTATATTTG TATTCTAGAC TGTTTAGTAA AATAATACAG
5051 GAATTTGAGA AAACCTTTGC AAAAGTGTTA GTGAAAATTA CTTAGGGTGA
5101 GAGGAAGTGA GGGATATTTT ATTAGGGGAG GTCACAAGGG CAGTGAGCAA
5151 TCAGATTTTT AGTAATCTGA CTTAAGCAGT TTCTTTTTGT TTTAATGAAG
5201 CTTGTTATCT TTATAAAAGT AATTAGAGAA AATTGGAATA ATAAAGGAAA
5251 GAAAGAAAAG TTCTTTAGTG TTTTATCAG CAAATACAAG CTCATTCTGT
5301 TTAAACATCT TGTTCCAAAC TCCAAAGTCT TGCTTTCTCT TCAATTAAAA
5351 CTTTAATGGG TGGATGCTTT TCCTGCTTCC AGTATGTTAT CTTAATAACT
5401 AACAATGGTA TATTAGCTAA TGTTTACAAA TGTAATCCAG ATGTTCTCTA
5451 AGTTACTTTG GTTTATCATT ACCAATTTAT ATTGTTTCTT TTAGAAATTT
5501 ATAATCTTTG TTAATGGGTT CTGCTAAATT TGGTAGTGAA AATGGGATCT
5551 TGAGAAAAAA GATTCTGAAG CAACAGAATT TTTAGATTTA TATTGGTTTA
5601 CATAAGAGTT GGTAGCTGTA TTACTTTTTT TGTTTGTTTT GTTTTTTTTT
5651 TGAGACGGAA TCTTGCTCTG TCGCCAGGC CTTGGCCTCC CAAAGTGTG
5701 GGATTACAGG CGTGAGCCAC TGTGCCTGGC TGTTTGTTGT TTTTTTGT
5751 TTTGTTTTCT TTTCTTTTTC TTTTTCGA GATGGAGTCT CACTCTGTCA
5801 CCCAGGCTGG AGTGCAAGTG CGCGATCTTG GCTCACTGCA ATCTCTGCCT
5851 CCTGGGTTCA AGCGATTTTC CTGCCTGGT CTCCTGAGTA GCTGGGATTA
5901 CAGGCATTTG CCACATAAC CAGCTAATT TGTATAGAG TACCCAGCCA
5951 TCTCTAATGT TGATCAGGCT GAAGCAGGTG GATCACCTAA GGTGAGGAGT

FIGURE 3B

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6001 TCAAGACCAG CCTGGCCAAT ATGGCAAAAC CCTATCTCTA CTAATACAGA
6051 AAATTATCTG GGTGTGTTGG CTGGCGCCTG TAATCCCAGC TACTCGGGAG
6101 GCTGAGGCAG GACAATCTCT TGAACCTCGG AGGTGGAGGT TGCAGTGAGC
6151 CGAGATCACA CCATTGCACT CCAGCCTGGG CAACAGAGCA AGACTTGTCT
6201 CAAAAA AAAA AAAA AAAA AAAA AAGGC AATTGAAAGT GTAATCTGAA
6251 CAGTTAAAAA AGTAGATAGA AAGGGTTAAA GCTTTTTTTT GAGGATCTGA
6301 AGAAAAATGT GGATTTTTTT TGAGCTACGT TTTGAAGCAG GCAGTGATTA
6351 TTTTCAGCACA TTAAGAAATG CTTAACATGG CCAGGCGCAG TGGCTCACGC
6401 CTGTAATTCT CAGCACTTTG GGAGGCCGAG GTGGGCGGAT CATTTGAGGT
6451 CATGACCAGC CTGGCCAAAC TGATGAGACA CTGCCTCTAC TAAAAATACA
6501 AAAATTAGCT GGGTGTGGTG GTGCACGCCT GTAATTCCAG CTA CTACAGGA
6551 ACCTGAGGCA GGAGAGTCAC TTGAACCTGG GAGGCGGAGG CTGCAGTGAG
6601 TCCAGATCAT GCCACTGCAC TCCAGCCTGA GGGACAGAGT GAGACTCCTC
6651 AAAAAA AAAA AAAA AAAA AAAGAAATAC TTAACATTAT TCTCGTGATT
6701 ATTCTCATAA CATTTTTTCAT AATCCACTGG CTTCCAGTGG ATTTTTTTAG
6751 TGTCAGAGAA ATAATTTTGA TTGGTTCATC TTTAAGGAAT GTGTTAAGAA
6801 TAAAGCATGT CTACCTGTCT TCAGTATACC AGCTAACTAT AGTAGGAAGA
6851 AATATAGTAG TCTACTTAGA TCAACTATAA TTCTTTAATG CAGAAAAAGT
6901 TTAAGTGTCT TACCTTATTT TTAGCCCCCA TCCCCTTAAG TATATCATGG
6951 CTCCAGAATC TCTGAAAATG TTATCAGTCT TTCAGACTTT GCTCTTCTTT
7001 CATGTTATAC TCAAGAAACA TTGACCTTT TTTTTTTTTT TTTTGCTTGC
7051 ATTGTGTTTC AAATAATTTT TAACAAAACCT TAAGTGTTTG AAAGTGAAAG
7101 CAGGTGTGCT TTGTGACTTT TGGTGGTGGT TTGAAAAACT CAGAAAAAGTT
7151 TAAAGAAGAA AGATAACTAG TATTCTCATT GTCCAGAATA TGATTTTTTA
7201 AATGTCTATA GAATATCACC ATCTGTAATT CTTCGGTAA TTTAAGTATT
7251 CAGTAGTTGT ATAAAACCTT TAAAATATAT ATATTAGAGAA TTTTGTGTGA
7301 ATGAGATGAT GAGATAATCT TGTAGGATCA TTTAAAGATA AGAACTGAGG
7351 CCTGGCACAG TGGCTCATGC CTATAATCAC AGCACTTTGG GAGGCCACGG
7401 CGGTAGATCA CCTGAGGTCA GGAGTTTGAG ACCAGCCTGG CCAACATGGC
7451 AAAACCTGT CTCTACTAAG CATAGAAAAA TTAATTGGGT GTGGTCGTGC
7501 CTGCGTGTAG TCCAGCTGC TTGGGAAGCT GAGGCGGGAG AATCTCTTGA
7551 ACCCTGGAGG TGGGCATTGC AGTGAGCTGA GATTGCGCCA CTGCATCCA
7601 GCCTGGGCGA CAGAGCAAGA CTCTGTCTCA AAATAAAGTA AAATAAAATG
7651 AAGATAACAA CTGAAATTTC ACATTAAAAA TTTTTTTGTA GCGACTGTGC
7701 CTCCTATGTT GTGCAGGCTG GTCTCAAACCT CCTGGCCTCA AGCGATCCTT
7751 CCAAAGCACT GGGTGGGCCA CCATGTCCAG CCTGAAATTT TGCATTAAAA
7801 AATTTCCCGC TTTTGGCTGG GCGAGGTGTC TCACGCCTGT AATAGCAGTT
7851 TGGGAGGCCG AGGCAGGCAG ATCACTTGAG GTCAGTTCTA GACCGGCCTG
7901 GCCAATGTGG TGAACCCCTG CCTCTACTAA AAACACCAAA TTAGCTAGGC
7951 GTGGTGGTGT GCGCTGTAG TCCCAAGCTA CTGAGGAGGC TGAGACAAGA
8001 GAATCGCTTG AATCTGGGAA AAAGAGGTTG CCGTGAGCCA AGATTGGCCA
8051 CTGCACTCCA GCCTGGGTGA CAGAGTGAGA TTCTGTCTCA AAAAAATAAA
8101 AAATAAAAAA TTCCCCCTTT AATCAAAATTA AGTTAAATG AGGGATGTTA
8151 GACAGTTTTT AACCATCAAA TATTTTAGTT TAGTTTTTTT TTTTAACTG
8201 TGTCTTAAAG ATGGAAGTGC TTCAAAATCA AATCTTCCTT GCCAGTTCTC
8251 TACTTGGCTT CTTTTTTTTT CTTTTTGAGA TAGAGTCTCA CTTTGTCACT
8301 GGAGTGC GTT GCGTGATCT CGGCTCACTG CAACCTCCGC CTTCCAGGTT
8351 TAAGTGATT TCCACCTCA GCCTCTCAAG TAGCTGGGAG TACAGGTGTG
8401 TGCCACCACA CCCGGCTAAT TTTTGTAGTT TTAGTAGAGA CAGGGTTTCA
8451 CTATGTTGGC CAGGCTGGCC TCAAACCTCT GACCTCGTGA TCCACCCACC
8501 TCAGCCAAAT TGCTGGGATT ACTTGTGTGA GCCACGCGCC TGGCTTCTAC
8551 TTGGCTTTTA AAGGGAATTT TGCTTTCTGA GTAATTTTAT TTCTCAGGTA
8601 TCTTGGTCTT TTTAATTCTG GAAGCAATCT TAATAATTTA TGTATGTGCC
8651 CTGTAATCCC AGCACTTTGG GAGGCCGAGG TGGGCGAATC ACGAGGTCAG
8701 GAGATCGAGA CCATCCTGGC TAACACGGTG AAACCCCATC TACTAAAAAT
8751 ACAAAAAATT AGCTGGGCGT GGTGGCAGGC GCCTGTAGTC CCAGCTACTT
8801 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN
8851 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN
8901 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN
8951 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN

FIGURE 3C

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Docket No.: CL001196
Serial No.: 09/820,003
Inventors: MERKULOV, Gennady et al.
Title: ISOLATED HUMAN RAS-LIKE PROTEINS...

9001 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN
9051 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN
9101 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN
9151 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN
9201 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN
9251 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN
9301 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN
9351 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN
9401 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN
9451 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN
9501 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN
9551 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN
9601 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN
9651 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN
9701 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN
9751 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN
9801 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN
9851 NNNNNNNNNN NNCCAGGCTG GAGTGCAGTG GCACAATCTT GGCTTACTGC
9901 AACCTCTGTC TCCCGGGTTC CAGCATTCTT TCTGCCTCAG CCTCCTGAGT
9951 AACTGGGACT ACAGGCGTCC ACCACCACGG CCAGCTAATT TTTATATTAG
10001 TAGAGATGGG GTTTCACCAT GTTGCCAGG CTGGTCTCCA ACTCCTGACC
10051 TCAGGTGATC CGCCTGCCTT GGTCTCCCAA AGTGCTAGGA TTACAGGCGT
10101 GAGCCACTAC GTTTGGCTGC TTATCAGCTT TTTACCACTT TGTCGCCACT
10151 ACATTTTGGG ATTTTCCTTT GAGAATTAGG CAAAATGCCC AGACTCCCCC
10201 CCGGCCCCCG CTTTAGAGGG AGAGGGGAGC AATTAGACTA TTCCTTTGTT
10251 TCCCTATAGA AGGTGGGGCT GAGATTACTG CTTTGATATC TGAATGTAA
10301 TTTAGGGAAG AAAATTTAGG TCTTGGCCTT TCTTTGGAAC CACCCTGGGA
10351 GTGTTTCAGA TTATTAATAG GGTAAATGGT GAATGATATT CAGGGGAAAA
10401 ATGGTCCTGA GGAGCCAGAG AACTAAGTGT TAGTTTGTG GCTGACTGAA
10451 ACATGTGAGA GATAGGGTAC AGAAGAAGTA GGAATAGTT TTCCTTGGTA
10501 CTTCTGTGAC AGGTGGCTC AATTGGCTGG AACACCCTAC ACTGCTTTAT
10551 TAAATCCAAG GTTGTGATAG GTTCCAGTTA AGTTTACTGT GTTCTATGCT
10601 TGTAGATTTC CTAATTAGGA CAAGTAGTGT TAAATATGCA TGCCTTTATT
10651 CACAAGAGGG ACCATTCTTT TGGAAACATC ACTTTTTAAT AATACTAGGT
10701 GCTATTTAGC ACTTACTCGG TGCCAGCCAC GTGGCTATGG TTTTTTTTTT
10751 TTTTTTTTTT CGAGACATGA TCTAGCTCTG TCTCCAGGC TGGAGTGGTG
10801 GTAGCACAGT CATGGCTCAC TGCAGTCTCA ACCTCCTGTA CTCTAGTGAT
10851 CCTCCTGTCT CAGCCTCCTG AGTAACTGGC ACCATGCCTG GCTAATTTTT
10901 TTAAAGAGAT GAGATGTGCG TATGTTGCCT ATGCTGGTCT CGAACACCTG
10951 GGCTCAAGTG ATCCTCCCCG CCTGAGCCTC TCAAAGTGTT GGGATTACAG
11001 GTGTGACCCA CCTCACTTGG CCATCTATGG TCTTTACATA GGGCATTTTG
11051 TGCAGTCTGC ATCTCAAAC AGTGATCTTC AACAGTGAAA CTCAGTGAAT
11101 TATGTAATTC ATGTTTCCCA AGAACAATGA TGGATTTAAT TTCTCTGAAT
11151 GTATTTCCCT TGTATAATAA TAGTACTTAA GTGGAATTAC TCTTTGTCTT
11201 TTCTACTCTC CTTATAGATA TTTTCTGGTA TCTTGATTG GGAAGTTTAC
11251 ATTTAACCCA TTTATGGTCG TGTAGCCATA CTCACGTTAC ATTTGATGCA
11301 TCTGCTCCCT TTGTGTCTAT ATACTCATAT AACATTTTGC ATAAAGTTAT
11351 AGGCAGTTCA CACCAAGGCT GTTCATGAAC CTCAGATTAA GAATACTTGA
11401 TTTAGGAGAT TGAACACAGA AAAGAGAATG TTAACATCA TTATCAATAT
11451 TAAAAATGTGA AAATCTGAGA GTGACAAAGC TTAGCTTTAA ATCTGGTATC
11501 CCAAACTCAT TTGAGTTTTT TTTTTTTTTT TTTTTTTTTT GAGACAAGGT
11551 GTCGCTTTGT CCCCAGGCT GGAGTGTAGT GGTGTGATCT TGGCTCACTG
11601 CAACCTCCAC CTCCCAGGTT CAAGTGATTC TCCTGCCTCA GCCTCTGAAG
11651 TTGCTGGGAT TACAGGCTGC GCCACCACGC CCAGCTAATT TTTGTATTT
11701 ATAGTAAAGA CGGAGTTTCA CCTTATTGGC CAGGCTGGTC TCAAACTCCT
11751 GATCTTGTGA TCCTCCCGCC TCGGCCTCCC AAAGTGCTGG GATTACAGGT
11801 GTGAGCCACT GTTCCCGGCC TAATTTGAGT TTTAAAAATG GGAGTTTAAAG
11851 ATGTTAGTCT TAAAGTGGGT TAGATGAAAT TTATAAAAAAT AGTCAAAATAG
11901 CTAAATTTAT AAAAGGCCAT TTGAAACAAT TTTGTGAAAT ATATAATGTG
11951 GATAATTATG TAGTGCTTTA TGTGTAGATT GGTGGTTAGC ATCTGCCTGA

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FIGURE 3D



Docket No.: CL001196
Serial No.: 09/820,003
Inventors: MERKULOV, Gennady et al.
Title: ISOLATED HUMAN RAS-LIKE PROTEINS...

12001 TGAAGAGCAG TTGGATTCTT TACTTACTAA AGCTAGTGAA ATCTGAACTC
12051 CAAATTAGGC ATCTTCACCA GGCTTTTTTG AGCCGAGCTA ACTTACTCTC
12101 TTTTTTATTT TTATTTTTTA ATTAATTAAT TTTTTTTTTT TTTTTTTTTT
12151 TTTGGTAGAG ACAGGATCTC CCCATGTTAC CCAGGCTTGT CTCTGGCTCC
12201 TTGGCTCAAG CAGTCTCCT ACCTTAGCCT CCCAAAGTGC TAGGATTACA
12251 GCTGTGAGCC ACTGCGCCAG GCTGAGCTTA TTCTCTACTA ACACAAGTGT
12301 TCTAATTTAA TTTAAGCAGT GAATCACACT TTTCTTTGTA TTTGGTCAGG
12351 TTCTGGGTGC TAGTTTATAT ATGATTTGAT TCATTCTGAT AGGGTTTTTT
12401 TGTTTTTTTT TGTTTTTGTT TTTTGTTTT TTTTGAGACA GAGTCTAGCT
12451 CTGTGCCCCA GGCTGGAGTG TGGTGGCTCG ATTTCGGGTC ATTGCAACTT
12501 CTGCCTCCCA CCCAGGCTGG AGTGCAGTGG CTCGATTTCT GGTCAATTGCA
12551 ACCTCTGCCT CCCAGGTTCA AGCGATTCTC CTGCCTCAGC CTCCTGAGTA
12601 GCTGGGATTA CAAGCACCCA CCACCATGCC CGGCTAATTT TGTGTATTTT
12651 TAGTAGAGAC TGGGTTTTCAC CATGTTGACC ACGCTGGTCT CGAACTCCTG
12701 ACCTCAGGTG ATCTGCCTGC CTTGGCCTCC CAAAGTGCTG GGATTACAGG
12751 TGTGAGCCAT CACACCAGGC CTCAAGAACT TTTTATTTTT GAGACAGGGT
12801 CTCACCTCTGT CACCCAGGCT GGAGTACAGT GGTGAGATCA TGGCTTACTG
12851 CAGCCTGGAC TTCCAGGCT CTGGTGATCC TCCCATCTCA GCCCCTGGAG
12901 TAATTAGGAA TATAGACACA CACCCATGCC TGGCAGTTT TGTATTTTTT
12951 TTCTTTTTTC TCTTTTTTTG TAGAGACTGG GTTTCACATG TTGTATCAGG
13001 CTGGTTTTGA ACTCTGAGC TCAAGCAATC CTCACTCTTT GACCTCCCAA
13051 CGTGTCTGGG TTACAGGCAT GAGCCACTGT ACCTGGCCTT TTCTACATTA
13101 AAAACTTTTT ATTAATAAAC CCAAATCTTC CTGTGTGTTG TATATACATA
13151 TATACATAGG TACACACATG GAGAATTTTA CCTTGGAGGA AGGCTTGGTA
13201 AAGAAATAG CCTTTGGGC CGGTGCGGG GGTGACGCC TGTAGTCTTA
13251 GCACTTTGGG AGGCTGAGGT GGGCGGATTG CCTGAGCTCA GGAGTTCAAG
13301 ACCAGCCTGG GCAACACAGT GAAACCCCTGT CTCTACTAAA ATACAAAAAA
13351 TCAGCTGGGT GTGGCAGCAT GTGCCTGTAG TCCCAGCTAC TTGGGAGCCT
13401 GAGGCAGGAG AACTGCTTGA ACCCGGGAGG CAGAGGTTGC AGTGAGCCGA
13451 GATTGTGCTA CTGCACTTCA GCCTGCGCGA CAGAGCAAAA CTCTGTCTCA
13501 AAAAAACAAA CAAACAAACA AAAAAGGAAA ATAGCCTTTC TCTATCATCA
13551 GAGTATATTA AGAGTTGAGT TTTTTTTTCT GTTTTTTAAA ATTTTTTTTG
13601 TTTATTTTAA ATTACAAAAC ATGGACTCTG CTTACAAATT AAGAAATGA
13651 CTCATGTTCA AACAGCATA ATCAATATAA CAGTTAATAC AAGTTAAATA
13701 TTGTAATATG TTTACGGAAT AGCATGGCAA AATAGTGCAA AAGATTGGG
13751 GAAGGGCCTG ATAATTTCTG TTAACAGAAA GTTTTAGTTA TGTGTATTCA
13801 ACTGGAGAGG AACAGAGCTC CCAGAAGGAC TCCAGAACAC TTGATGCTTG
13851 TCTGAGTGGG GTCAGCAGCA CTGAGTTCCC ACCAGCCAGA AAGTTTGTGT
13901 GTGTACATTA TTTCCCTTAA CTGCCACAAT AATCCCATGA AGAAAAATGCC
13951 CTAGTTTTAC AAACAAGGAA ACAGAGGCAG AGAAGAGTTA AATGACTTGC
14001 CCAAGGGCAT TCAAAGTAAG CAACTGAATT GGAATTTTAA CTCAAAGGCT
14051 TGGATGTCCC ACTACAACAA ATAGGCTGTT TCTGCTTTAC TACATGTGCT
14101 TACTTCTAAG AATTTAACAT TTTAGGCTGG TTGTGGTGGC TCACTCCTGT
14151 AATCTCAGCA CTTTCGGAGG CTGAGGTGGG TAAATCACTT GAGCTCAGGA
14201 GTTTGAGACC AACCTGGGCA ACATGTTAAA ACCTCATCTC TACCAAAAAA
14251 AAAAAAATAA CTAGCTGGAC GTGGTGGCAC GCGCCTGTGG TCCCAGCTAC
14301 TCAGGAGGCT GAAGTAGGAG GATCGTTTGA GCCTGGGAGG TGGAGGTTGC
14351 AGTGAGCCCA CATTCGATCA CTGCACTCTA GCCTAGGTGA CAGAGTGAGA
14401 GCCTATCTCA CACACAAAAA AAAGAATTTA AAATTTTAGT CAAGTAATTA
14451 GGCATAACAA TTTTGTGGTC AGTTACTTTA CGAATTCATG GTTGGAGGCC
14501 TGATGTGGTG GCTCATGCCT GTAATCCCAG CACTTTGGGA GGCTGAGGCA
14551 GGAGGATTGC TTAAGGCCAA GAGTTCAAAT CAGCCTGAGC AACCTAGTAA
14601 GATCCCCCTT CTGCAAAAAA TTTAAAAATT AGCTGGGCAT GGTAGTGTGC
14651 ACCTGTAGTC CCAACCACTT GGGAGGCTGA GGTGGGAGGA TTGCCTGAGG
14701 CCAGGAGTTT GAGACCTGGG CAGCATATGA AGACCTGTCT TCTAAAAAAC
14751 TAAAAATAAA AAATAGCCAG GTGTGGTTGG TGTGCTTGTG GTCCAGCTA
14801 CTCAGAGAGC TGAGGCAAGA GGGTTGCTTG AGCCAGAAAG TTGGAGGCTG
14851 CCGTGAAC TGATTGCACC ACTGCACTTC AGCCTGGGTG ACATAGCAAG
14901 ACCCTGTCTC TGTGGTGGTG GTGGGTGGGG GTGGGGGAAG GGATTTAAGA
14951 AGGGTTTGTG AGGTATGTAT TATTTATAAA TGGGCTTTTA ACTTTACCTT

FIGURE 3E

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Docket No.: CL001196
Serial No.: 09/820,003
Inventors: MERKULOV, Gennady et al.
Title: ISOLATED HUMAN RAS-LIKE PROTEINS...

15001 TCACATCTTG GGTGAAAT AATGTATCC ATTCTCAGTT TTTCTGTCTT
15051 GCTATATATT TAACTTGGA GACTTAGAGG TCATGGATGT CTTTCTATGA
15101 AAAGCAAATG AAGCAGAGGG CTGCCTTCTC TTGCTGTAGA GGGCACACTT
15151 GCTGCAGAGC ATGTTACTGT TTTATGCATT GCTAGGCTTT GGGAGTTGTG
15201 ACTTGATGA TCATAGTACT TACAACATTT AGTTGGCAAT TTTTAACTT
15251 TAACTTTGA TTATATATGT AAACCTCTGT GTTCCTTTGT CACTGATAAT
15301 CTGAACAGAA GCCTTGGATA AATAATTTTG AAGTTTTGT CTGAACCTCT
15351 GAAATTTGTA TTGTATCTC ATGGTTTTGC TGGGAGGAAG GAGAAATAAC
15401 AATGGCCACT TACTGTGCTT CTGTATGTGC CAGACAGTAT GTGCTAGATG
15451 TTTTCAGAAAC GTGATTTGTA ATCCTGACAA GAAGCCTAAT TGGGTGGTAG
15501 TGGGTGCTAA TTGAACCTTA TAGATGAGGA AATTGAGGCT CATGGTGGTA
15551 AGTGAATAAC TTGCACCAAG ATCCTATGGC TGGTATGCAG TAGAGCCTCA
15601 ATTCAAGTAC GGGTCTTCCA GGTCCAAACC CATGCAGGCT TTGAGAGGTA
15651 AGGAGGTAGA GAACGTTGAC ACCCCCTTCT TGGTGTGTTT TTCAGCAAAT
15701 ACTTGATATG ATATTAAAGA CTGTCTACCC TTTTGTCTATC TGTGTCACT
15751 TGCTGCTTCC TTTGGTACTA CCCAAATTTT TTTTCAGCATT TCAGCTTTGA
15801 ATTTTATTTT TTATTTTATT TAATTTATTT ATTTTTTTGA GATGGAGTCT
15851 CACTCTGTTG TCCAGGCTGG AGTGCAGTGG CGTGATATCA GCTCACTGCA
15901 ACCTCTGCCT CACAGGTTCA AGCAATTCTT CCTGCCTCAG CCTCCTTAGT
15951 AGCTGGGACT GGAGGTGCCC ACCACCACGC CCAACTAATT TTTGTATTTT
16001 TAGTAGAGAT AGGGTTTTAC CTTGTTGGCC AGGCTGGTTT TGAACCTCTG
16051 GCCTCAAGTG ATCCACCCAC CTCGGCCTCC CAAATATGCTG GGATTACAGG
16101 CATGAGCCAC TGCACCTGGC CAGCTTTGAA TTTTAGAAT ACTGTTCTAA
16151 ACAGAATAT ATTGGAACCT GGAAAATTAA TCTATTGTCT CTAAATACCA
16201 AAGAAAAACA TGTAATTTTA GTGGTTGATT ATGGGAACAA TTTTTTTTAA
16251 GATGGTTCAT CTGAATGGGA AGCATTTTTT TTTTAAATGC TTGACTATTT
16301 CTTTAAATTT GGAGAAAAGA CCATTGCCCT CTCAGATTTT TGGTAATTGG
16351 TCACATTGAT CATTTATATT GACTGACAGG CTGCTTTGTC CACAGCTGAA
16401 GGATTGTTTA ATTTTTTTTA AATTATAAGA GTAATATGTG CTCACTGTAA
16451 AATTACAGT ACAGAAGCAT ATGAACTAAC TAAAGTTCT TACCTCTTGT
16501 CTCCAGCAAG GAGTAAGTGT TTCAACCTGA AGGTTGGTTT TGAATTGTGT
16551 TCTGTGGAGC GTACTTAAAG TGAGTGAAGA AGAAAAATTT ATGTCAATCA
16601 TGATCATTGC AGCTGAAGTT TTTATTGTTT CACCCCTTAA AGGTTATTAA
16651 AATAGTATGT AGTTTAGTAG TCTTGATAAT TTTCCCTTAA GATTTATTGG
16701 CCAGTATATC AGGATTTTGT TTTAAATTTG ATATGTGAGC TTAGTTTAT
16751 GCTATTTTCA AATAAGACAT TTAGAAGAAG ATAAAATAAC ATTCCTGTCT
16801 TAGTCTGTTT TCTGCTGCTA TAACAGAATA GCACAGACTG GGTAATTTAT
16851 AAACAGTAGA AGTTTATTTG GCCTGTGGTT CTGGAGGCTG GGAACCTCAA
16901 GAGCATGGTT CTGCCCTTTG TGCTGTGTTA TCATATGGTG GAAGGTGGAA
16951 AGGCAAGTGG GTATGTCAAG ACAGAGAGCA AGAAGGGGCT TGAACCTCACT
17001 TTTATAACAG AGTGACTCCA GAGATAGCTA ACCCACTTTT GAGAGAATGC
17051 ATTAATCCAT TCATGAGGGC AGAGCCCTTG TGACCTAATC ACCTCTCATT
17101 AGGCTCTGCA TCCTTAAACT GGTTTTTTTT TGTTTTTTTT TTTTGAGACG
17151 GAGTCTCGCT CTGTTGCCCA GGCCGGACTG CGGACTGCAG TGGCGCAATC
17201 TCGGCTCACC GCAAGCTCCG CCTCCCGGT TCACGCCATT CTCCTGCCTC
17251 AGCCTCCCGA GTAGCTGGGA CTACAGGCGC CCGCCACCGT GCCCGGCTAA
17301 TTTTTTGTAT TTTTTTAGTA GAGACGGGT TTTACCTTGT TAGCCAGGAT
17351 GGTCTCGATC TCCTGACCTC ATGATCCACC CGCCTCGGCC TCCCAAAGTG
17401 CTGGGATTAC AGGCGTGAGC CACCGCGCCC GGCCCCCTT AAAGTGTGT
17451 ATTGGGGATT AAGTATCTAA CACAGGAAT TTGGAGGATA CATTTAAACC
17501 ATAAGAATTC CTGTCATGCA AATGAATCCA TTCTAGATGA AAGAGAATGA
17551 ATTTAGTTTC CATTGAACCT TATAAATAGG CCTTTTCTAA GGTACTTACA
17601 GCTGATATTA TAAATTTTAT ATTTGTTTTT ATAAATTTGT ATTTGTATTT
17651 CTGTTTGTAC AAATACAATT ATACACTATA GTTCTCTGCT GTTAGATTTT
17701 TTTTCTTCTC TAGCATGTTT CCAAAGGGTG GAATGTTGAA AGTTGGGTAA
17751 ATGTCAATCA GCTTTCTTTT GTAAAGTGT CATTGACATG TGAACCTTGT
17801 CTGAGAATCT AAATTTTATT TCATGAAAGA AGAAAACAGT ATATTCTCAT
17851 TTAACCCAGA ATTTAACTTC ATATACTTGT GGTGTATTG GGAGTATGCC
17901 ATTGCTGTCT GTTTACAACC TGACCTACTT TACCTACTTA GAAGTAATTT
17951 GTGTTATGAT AGGTGTGCTG TGCTGACATA TGCTGAACAT ATTTGTAAGG

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FIGURE 3F



Docket No.: CL001196
Serial No.: 09/820,003
Inventors: MERKULOV, Gennady et al.
Title: ISOLATED HUMAN RAS-LIKE PROTEINS...

18001 GTGTTAAGTC ATTGAATAAA ACGCTTTTCT CCTCCTTTCA AATAACATTT
18051 TTTATTCTCTG GTTATAAAAG TCATACAAGC TTACTGCAGG TTGTTAAAAA
18101 GGTATAAAGA AGAAACCGTC AATCCATTAT AATCCTACAG TTTAGACTTC
18151 CTGCTCCAGC CTCTCAGAGT GCTGAGATGA GCTAGCCATG CCCAGCCCCCT
18201 CAAAAGATTT TTTAAAAAAC AAAAATGAGG TTATACTTTA AAAAATTCTA
18251 TATTCTTTTC ACATAACAGT GTTATTTTGG AGGTTTTAGA ATTTCCAGTA
18301 GCATTTTAGA TTCAGAAACA AGCTGATTCA TCCTCTACTT TGTACTTTAG
18351 GCAAGAAAAG AATTTTACCT AAATAGAAAT TTGAACAGAA AATCTGTTTT
18401 TCTAACTTTT TATTTAAAGA ATATTGTTCC ATGCTTTTCA AGTAGTGACT
18451 TTTAATTTTT ATATTTTTTA TTTTATTAT TTAGAGATGG GGGTCTCACT
18501 CTTGTTGCCT AGGCTAGAGT GAGTGCAATG GTTCTATTCC TAGCTCACTG
18551 CAACCTTGAA CTCCTGGGCT CAAGTTACCC TCCTGCCTCA GCCTTCTAAG
18601 TAGCTGGGAC TACAGGTGTG CACCACTGCA CCAGGCTTTT TTTAAAGGCA
18651 TAGAAAATGG TAGTGCTTGC ATACAAAAAT GCGTAGGTA CATACATCAG
18701 CGGACATCAA GACTATGTTT AGATCATAAA TGTACATATA TGTACCGATG
18751 CCATTTTTCG ACGCAAACAA ATAATGGAAA TTGAACCTTA AACTGAAATT
18801 TGAAACAAGG GTTCTGGGGT GGGCCCTCTT GCTGATTGT AATTGAATGT
18851 ATAGTTCAAT TTTTCCCAT CTGTTAAGCA AAAGACAATT CTAATGTTAG
18901 CAAAATCCCA CATATCCTGT CATGATCAT TTTTTCCTTA ATTTTCTTTA
18951 AGAGATGGGG CTTCTCTCTA TGTGCCCAG GCTGGTCTGG AACTCTGGG
19001 CTCAAATGAT CCTCCAGCCT CAGCCTCCA AAGTGCTGGA ATTAATAGGC
19051 ACAAGCTGCT GTGCCTGGCC CTGTCATCAG TCATTTAACT TCATGCAAAAC
19101 TGAGTAGAAT AAACTCGTC CTTACTGTAC CTTATTGCTT TGTTTTATT
19151 GTTGAACCTT CCAATATTGC GAAAGTAGAC CAAAAGTTGA CTTATAGGAA
19201 AACTGATAG CAAAATAAT TTTCTCTTG TTGCTGTATT TCATGCCAC
19251 CATCCAGTTG TTAAGCCTA CTGTTAATT CTCTCAGCCT CCTCTTTCT
19301 GTCCAGGCTT ATTCTATGCC ATTCTTACCT TAAGTGTTT TAGCTTTCTC
19351 ATAGAGTGAA CTTTTTAAAT TAAAATAAAA TATCTGCTCG TAGTATTATA
19401 AAATCAAGC AGTTCAACAG AATTTTTCAC TAATAGAAAT ACTTGTTACT
19451 CAAAAGCAGC TTTATTTTAC AAACCCAGCC CAATTTGTGA TTAGATTAA
19501 CTTGAGAAAA CATGAAATGT CTCTCATATT GTTTAAAAAT ATCATAAGTG
19551 GCTGGGCACG GTGGCTTATG CCTATAATCC CAACACTTTG GGAGGCTGAG
19601 GCAGGTGGAT CACTTGAGGT CAGGAGTTG AGACCAGCCA GGNNNNNNNN
19651 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN
19701 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN
19751 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN
19801 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN
19851 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN
19901 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN
19951 NNNNNNNNNN NNNNNNNNNN NNNNNNNNTT ACCATGTTGG CCAGGCTGGT
20001 CTCAAACTCC TGACCTCAGG TGATCCACCT GCCTGGGCTC CCCAAAGTGC
20051 TGGGATTATA GGCTTGAGCC TCGCCTGGCC TCCTCATAAT TTTTAACTT
20101 TTATAAAAAC CTTTCTTAA ACCCTTTTTA TTTTGAACCTA AATTTAGATT
20151 TACTGAAATT GTGAAATCAA TGTGGAGTTC TTGTATACCC TTCTTCCGC
20201 TTTTCTAAT AGTAACATCT TACATACATG GTACATTTGT CCAAATTAAG
20251 AAATAAACAT TGGTACAGT TTAACATAG ACTTAATCTG GTTCTCTAA
20301 TTTTTCCTT AATGTTCTT TTCTGTTCTA GGATCTAATT CAGTATACCA
20351 TATTGTATTT AGTTGTAGGC CATGTTAGCC ACCTTCAATC TGTGACAGTT
20401 TCTCAGTCTT TCCTTCTTTT TCGTTATCTT GACAAGTTTG AAGAGTGCTG
20451 ATAGGTATTT TATAGAATGT CCGTCAGTTG TCTGTCAGTT TGTATTGTC
20501 TGATGTATTT TTTTTTTTTT TTTGAGATG GTGTCTCGCT CTGTCGCTA
20551 GGCTGGAGTG CAATGGCATG ATCTTGGCTC AATGCAGCCT CCACCTCCGG
20601 GGTTCAAGTG ACTGTCCTGC CTCAGTCTCC CAAGTAACTG AACTACAGG
20651 CATGTGCCAC CACGCCTGGC TAATTTTTTG TATTTTAGTA GAGAAGCAGT
20701 TTCACCGTGT TGCCAGGCT GGTCTCGTGC TCCTGAGCTC AGGCAATCCA
20751 CCCGCATTGG CCTCCCAAAG CGCTAGGATT ACAGGTGTGA GCCACCATGC
20801 CTGGCCAATA TTTTGAGGGA TATACTTTGG TGAGGTCATG CAGATATCCT
20851 GTTCTCTCTT AGTTTATCG ATTAATTTAG CATTTATCCA GTAAATCTTC
20901 CTTGCAGCAA TTATTTTTTC TTTTCTTTT TCCTTAATT TTTTTTTAA
20951 GAGATGGGAT CTCCTCTGTG TGCCCAAGTT GGAATGCAGT AGTGAGTTCA

FIGURE 3G

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Docket No.: CL001196
Serial No.: 09/820,003
Inventors: MERKULOV, Gennady et al.
Title: ISOLATED HUMAN RAS-LIKE PROTEINS...

21001 TAGCTCACTG CAGCCTCAAA CTCCTGGGCT CAAGTGATCC TTCTGCCTCA
21051 GCCTCTCAAG TAGCTGGGAC TACAGGCATA GACCACCACA CCCAGCTAAT
21101 TAAAAAAAAT ATTTTGTAGAG ATGGGGGTTT TGCTATGTTG CTCAGGCTGG
21151 TCTTGAACCT GCTGGCCTCA TGTGATCCTT CTACCTCAGC CTTACAAGTA
21201 GGTGGGAATT ACAGGTGTGA GCCACCACAC CCAGCATGTC AGCAATTATT
21251 AATGTAGTGC TACTGGTCAT TTTCTGTTTT TCTCATTCTC TCAGCATGTG
21301 TTATTGACTT GTCTCTTCCC TCCCATTAT AATCATTTAT ACTGCTATGA
21351 ATTCATGAGT ATTTATTTTG TGAGTTATAA TCTAATACGT ACTTAATTTA
21401 TTTTGTGCCT CAAATTGTTC TGGCTTGGCC ATTTTTTTTT TTTTTTTTTG
21451 AGACGGTCTC GCTCTGCTGC CCAGGCTGGA GTGCAGTAGC GCCATCTCTT
21501 CTCCTGCAA CCTCCACCTC CCGGGTTCAA GCGATTCTCC TGCCTCAGCC
21551 TCCTGAGTAG CTGGGACTAC AGGCGTGTGC CGCCACACCC GTCTAATTTT
21601 TTGTATTTTT AGTAGAGACA GGGTTTCACC ATGTTAGCCA GGATGGTCTC
21651 GATCTCCTGA CCTCGTGATC TGCCCGCCTC AGCCTCCAAA AGTGTGCGGA
21701 TGTAAGGTGT GAGCCACCAA GCCCGACCGG CTCTGTATC CTTTTAACAT
21751 GAGGTGCTGT CATCATTTTT TCCCCCTAAT ATTTTGGCCA AAAATGTTAA
21801 TCAAGGATGG CACAAATTTT CTGTAGCTGT ATCTCACAAAT GAAAGAGGCC
21851 TGATTAAAAA TGTAAAACTA AAATGTTCTC TGATCTCTTA GCACATGCTT
21901 TGTAAGGTGT ACAGTGCTAG ATCCTTGAT ACGTAGATGA GTAAGTCAGC
21951 TTACCTTCCA CACCCACAGA TAGCTATGTC AAACGTAAGG GTGGAGAAAC
22001 ACAGACCCCA AACTTCTCGA GGGTAGAAAA TATGAGGTTA TAGTAGATTA
22051 GAACTACAAA AAGCTAGAGG AAGTTCTGAA CTGGAAACAC TGGATAGGAT
22101 TTACTAGAAT AATTTACGAG GGTGACAAAT GTAAATCTTC ATAGGTTTCT
22151 TTTTCTTCTT TTTCTTTTTT TTTTTTTTGA GATGGAGTCT CGCTCTGTTG
22201 CCCAGGCTGG AGTGCAATGG CGCAGTCTCT CCTCACTGCA ACCTCCGCCT
22251 CCTGGGTCCA GGTGATTCTC CTGCCTTAGC CACCCAAGTA GCTGGGATTA
22301 CAGGCATCTG CCACCATGCT GAGCTAATTT TTGTATTTTT TTTTTTAGTA
22351 GAGACGGGGT TTCACCATGT TGGTCAGGCT GGTCTTGAAC TCCTGACCTC
22401 AGGTAATCCA CCCACCTTGG CCTCCCAAAG TGCTGGGATT ACAGGTGTGA
22451 GCCACGCGC CCAGCCAAAT TTTTATTGGT TTCTAACTA GCGTAATTTA
22501 GTTTTTTTCA CTTAAGTCAA AATTATATTA TTGTAGGATA AAAACTTAGT
22551 GATCCAAAT CATGAGGAAT GAAGAATAA TACATTTAA GTCTTACCAT
22601 TTGCTAAAT AGTCTTGGCT CTTGTACCA AAATTCGTG CTTGTGCTCT
22651 GTAATTTTAT ATTTGTATAT TTTCTATCAA CATTTTTACT GTGTGGTGT
22701 TTGTAATTA TAAAAACGTT TTAAGCAA CACAGAACAA TGAATCTCA
22751 CGAATATTCA GTATATTTAC AGTTGAGAAA TAACTACTT CTGTAGTAGG
22801 TAATTTAAAA TGTCCCAATG CAAGTTAACG TGTCACTGAT CACGCTATTC
22851 AGGTGTGTGT CTTTGATAAG GGGAGGTGGG GAAGTTTGTG GGTTTGATTT
22901 TATTGTCCTT TCTCATGTGA CTGTTGTCTG GTTAGTAAAC AAATGGTTTG
22951 CGAGAGAACC AGTAGTCTTT TGCAAAGATT GTCTTATACA GAGACTCAA
23001 TTCTTCATAT TATTATAAT GGCTTTAATT TAAGCCTTAA ATTATTAGAA
23051 ACTCATAAAT AATTTTTTTT TTTGTTTTTT TGAGATGGAG TTTCCGCCCT
23101 ATTTGTCAGG CTGAAGTACA ATGATGTGAT CTGACTCAC TGCAACCTCC
23151 GCCTCTCGGG TTCAAGTGAT TCTCCTGCCT TTGCCTCCCA AGTAGCTGGG
23201 ATTACAGGCA TGCGCTACCA TGCTGGCTA ATTTTGTATT TTTAGTAAAG
23251 ACAGGATTGC ACCATGTTGG CCAGGCTGGT CTCGAACTCC CAACCTCAGG
23301 TGATCCACCT GCTTCGGCCT CCCAGAGTGC TGGGATTACA GGCTCACTGA
23351 GCCACTGTGC CCAGCCATAA TCGGTTAAAA TAAGAGTGTT ATATTGTAA
23401 AACTTAAAAA AATGTAGTGG TTGAAAAAGG TAATTTAAAA AGAATTGACT
23451 ATTAATTTCT TGAAACCATA ATGTAACCTG TAGTGCAATT AGGAAACCTT
23501 CATGTTTCTT TCTTCTTTC TTTTTTTTTT TTTTGGAGAT GGAGTTTTCG
23551 TCTTGTGCC TAGGCTGGAG TGTGTGATGT CAGCGCACTG CAACCTCTGC
23601 CTCCTGGGTT CAAGCAATTC TCCTGCCTCA GCCTCCCGAG TAGCTGGGAT
23651 TACAGGCGCC TGCCACCACA CCCAGCTAAT TTTTGTATT TTAGTAGAGG
23701 CGGGGTTTCA TCGTGTGGC CTGGCTGGTC TCGAACTCCT GACCTCAGGT
23751 GATCCACTGC ACCTGGCCCC CGTTCATGTC TTTTAAAGCT TTATGGTTGC
23801 TCTGAAATAG AGTGTGTGAT TTTTTTTTTT TTTTGGAGAC TCCTCTTTTG
23851 CCCGTGCTGG AGTGCAAGTGG TGTGATCTGA GCTCACTGCA ACCTCCACCT
23901 CCTGAGTTCA AGCAATTCTC ATGGGTGAGC CTCTCAAGTA GCTGAGATTA
23951 AAGTGCCCA CCACCATGCC TAGCTAATTT TAGTATTTTT AGTAGAGATG

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FIGURE 3H



Dock t No.: CL001196
S rial No.: 09/820,003
Inventors: MERKULOV, Gennady et al.
Title: ISOLATED HUMAN RAS-LIKE PROTEINS...

24001 GGGTTTCACC GTATTGGCCA GGGTGGTCTG GAACTTCTGA CCTCAGGCAT
24051 GAGCCACTAC GCCTAGCCTG GGTGTTGAT CTTTAAGGTG ATACTTCAGG
24101 CAACATCTGA GGCCAGTAC AGTCCTTTAC TTCAACTGGC TCCAGTACAG
24151 CAAATTCAGG GAATGTTTTT GAGTGGTTAC TGGATGCCTG GCGTGGAGTT
24201 CAGGGAGATT GGTACATTGA GTCCAGTTGT TGTGTTGAAA CTCTGTGTTA
24251 AAAACCTCCC TACTAAGTCC CAGCTACTCA GGAGGCTGAG GCCTGAGAAT
24301 CACTTGAACA CCTGGAGGCA GAGGTTGCAG TGAATCGAGA TCGAGCCACT
24351 GCACTCCAGC CTGGGCGACA GAGTGAGACT GTCTAACAAAC AAAACAACA
24401 CCCCCAAAA AACCAACCTA CTATGGTAGT ATCAATGCTG TGATAGTCTT
24451 CCTTTCCTCA TACAGGTAAA TTCTTAACAT ATACTCATTG TTAATGTTCA
24501 GTGTTCACTA TTCTTAAGAG TATTTGGGGC CAGGCACGGT GGCTCATGCC
24551 TGTACTCCCA GCACCTTTGGG AGGCTGAGGT GAGCAGATTA CCTGAGGTTA
24601 GGAGCTTGAG AACAGCCTCC AACATGATGA AACTCCCGTC TTTACTAGAA
24651 ATACAAAAAT TAGCTGGGTG TGTAGCACA TGCTCTGTAAT CCCAGTACT
24701 TCAGAGGCTG AGGCAGGAGA ATTGCTTGAA CCTGGGAGGT GGAGGCTGCA
24751 GTGACCTGAG ATTGCTTCAC TGCACTCCAG CCTGGGCAAC AGAGCGAGAC
24801 TCTTGTCTCA AAACAAACAA ACAAAAAAG AATATTTGGG GCCAGGCATG
24851 GTGGCTCACA CTGTAGTCC CAGCACTTG GGAGGCCAAG GTGGGTGGAT
24901 CACTTGAGAT CAGGAGTTGG AGACCAGCCC GACCAACATG GCTAAATCCC
24951 GTCTCTACTA AAAGTACAAA AATTAGCTTG AGCAACAGAG CAAGACTCTG
25001 TCTCAAAAAA AGAAGAAGA ATATTTGGTT TAATTAAGAA GGAACCTTAT
25051 CAATAGTAGT AAAGTCAGCC AGCTGAAGT CCAAGTACAA ATTGTTGGTA
25101 TTAGGTATCA ATCATTTATT AAGGATAATA TTCTACAATA GCGATCTTTT
25151 TAAAAATTTT AAAATCTCAA ACTGGAAGG ATGTCTAGTT CATTCTATGC
25201 TTCAGTCCCC TCTCTGATT TACTTGTTA GAAGATTTT GTTTCCTTCT
25251 CTGACTTCTA TTTTGCTGCT GACTGGCACT TGGGATTTT AAAAAATTAT
25301 TTTCTCATATA TATAATTAAA GACAATAAGT ATAACAATA GTATAATATG
25351 GTAATTTGCT AAAACCCAAA CAATGTTTAA AGTAATGCAT ATCATATATG
25401 AAACCTACGT AATAGTTGAA TATTCACAAA GATAATCGCT TATAGAAGTT
25451 TTATATCCTC TCTCTTTGG CAGTGCAATT AAAACAAAAA AAATAAGTTT
25501 TATGTCTTGT TTACATGTAA ATAATTTTAA TCTAAATTGT GACGTGGTTT
25551 TCACCTTTAGC ATATTTTGA AAGTAAATCA AAAAGGACAA AATACAAAAAT
25601 CATGTATATC TTCTACAAAA ACGATATATA AATTCTAAGG TTTTGTCTCT
25651 TTTGAAATTG CTTAAAAGAA TGCATAGAAC TGGTGTCTGA GTTGGGAAGG
25701 ATCTATGAGG GATTTCTCTG GAGACCGTGG GTGAATAATA ATGTTGTCTT
25751 AGTTCCATGA AGGAATCTCT GGGGATAGTT TTTGAGTTAG GCCTGGCAAT
25801 GTTAGAGATA CATAAAGAGA GCCTTGTTT ATCACTGGGT GCGGTGGCTC
25851 ACACCTGTAA TTCCAGCACT TTGGGAGGCT GAGGCGGGCA GATCATGAGG
25901 TCAGGAGATC GAGACCATCC TGGCCAACAC GGTGAAACCC GTGTCTACTA
25951 AAAATACAAA AATTAGCTGG GCGTGGTGGC GCATGCCTAT AATCCCAGCT
26001 ACTCGGGAGG CTGAGGCAGG AGAATCACTT GAACCAAGGA GTTGGAGGTT
26051 GCAGTGAGCC GAGATCGCGC CACTGCACTC CAGCCTGGGT GACAGAGCAA
26101 GACTCCGCTC CAAAAAATAA AAGCTTGTTT TTCAATGGTT CTGAAAAATG
26151 CTTTAATACA AGTGTAGAGT GTTAGTCAAG TTTTGCCTT GGATAAACAG
26201 CCTGTGAATT TATCACATT CTAGTTTATA ATATGGGCTT TCAGAAGTTA
26251 TATGAACATT GTTTGACGG GAGAATTCAA GCTGGATGCT AGAGAAGGAT
26301 CGTGAGAACC CCTTCATTGG AGGAGTGCTA TGAAATTATT TGATCTTGGA
26351 ATTTTTTTTT TTTTTTTTT TTTTTTTTT TTTTGTAGAC AGAGTTTCGT
26401 TCTTATTGCC CAGGCTGGAG CTGGAATGCA GTGGCAGAT CTCGGCTCAC
26451 TGCAACCTCT GCCTCCTGGG TTCAAGCAAT TCTTCTGCCT CAGCCTACCA
26501 GGTAGCTGGG ATTACAGGCA TGCGCAACCA TGCCCAGCTA ATTTTGTAT
26551 TTTTAATGGA GACGGGGTT CACCATGTTG GTCAGGCTGG TCTTGAACCTC
26601 CTGACCTCAA GTGAACCTGCC TGCTCAGCC TCCCAAAGTG TTGGGATTAC
26651 AGGTGTGAGC CACTGCGCCT GGCTGATCT TAGAATTGA AGGAGAGACT
26701 AATATTTTCA GGGCAAAAAC AATGAAAAGT TACCTTTCTG TATTCTAATA
26751 CTATAGAGGA GTGGGATTTA TTTAGAAATG TTTAAGTATC TTGGGCAGTC
26801 CAAGAGTGCG TATCACTTAT TTTCTTTTC CTCTTTCTT TTTAAGTGGA
26851 AGTTCACCTA TGTTAGAGAT CATAGGTGGC ATTGCCTACT TTTTACATAA
26901 TTTTATCATG TTTAGTGATC TGTCAGAAGG GCTGTGGCTG TTTGCAGTTT
26951 TGGCTTAAGC CATGCATGGG CTTTATAGGA GATGTAGTCT TCACAGTGAG

FIGURE 31

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Dock tNo.: CL001196

Serial No.: 09/820,003

Inventors: MERKULOV, Gennady et al.

Title: ISOLATED HUMAN RAS-LIKE PROTEINS...

27001 TTGTTATTG TAGCTGTGTT TTTGTTTTG TATAGCTTAT AGCAATGCAG
27051 TGTGCTTTTT ATTAACATCA TTTTCTTTTT CTTTTTGAG TGATTATTTA
27101 TTCAAGTTAC TTCTGATTGG CGACTCAGGG GTTGGAAAGT CTGCGCTTCT
27151 TCTTAGGTTT GCAGTAAGTT GAAATTGAAA TGTCTTTACA ATTAATGGTA
27201 CAATTAATGC TATGTATGTT TTCTAGGTAG ATAAAATTAA ACAGTTTTAT
27251 TCAGAATAAG TTAATTCTTC CAGAATTTAT ATATTTAAAG ACTCCAAATA
27301 TACATCCCA GTGGTATCTT GGAAGTTTAA ATAGAAAAAT ATTGTTGCTC
27351 TTAAGAGAAA TTCAGTGAAG TCTGGTTATA AAGTCAGAAT GTCTAATACT
27401 TTTGGTCAGA GTCAAACAGC AGTTCCAATA TAGGCAGCAA GTTAAAGGGG
27451 TAGTTGGTGG CCTGTGTTGA AAGCGACTTG ATGAAAAATA ATCTTTAAAT
27501 TAACTTTAG TAGAATAAAA AGAAAAAGCA GAGCCAGGTG ACGCAGTGGA
27551 TCATGCCTGC AGTCTCAGCT ACTCAGGGTG CTGAGGGTGG AAGGATCACT
27601 TGAGTCTAGG AGTTTTGAGA CCAACCTGGA CAACATAGCA TGACTCTGTC
27651 TCTGAAAAAA AAAGTTAATA AAAGAAAAAG TAGGGTCTTG GACAACTTC
27701 GTTGGCCAAT GGCATAGTTC TAAATGCTGA AGCTGACAGA TAAAGGACTT
27751 TTGACTTAAC AGAATCCACA GTGCTCTTCA TAGTCTTTAT CAACTACCTT
27801 TAAATTTAGC ATGTTTCCTG GCCAGGTGCG GTGGCTCAGC CTTGTAATCC
27851 CAGCACTTTG GGAGGCCGAG ACGGGCCGAT CACAAGGTCA AGAGATTGAG
27901 ACCATCCTGG CTAACACGGT GAAACCCCGT AGCTACTAAA AATACAAAAA
27951 ATCAGCTGGG TGTGGTGCCA CACGCCTGTA GTCCCAGCTA CTCGGGAGGC
28001 TGAGGCAGGA GAATCGCTTG AACCAGGAG GCGGAGGTTG CAGTGAGCTG
28051 AGATGGTGCC ACTGCACTCC AGCCTGGCAA CAGAGCAAGA CTGTCTCAA
28101 AAAAAAGAA AAAAAATAAA AAAACAAATT AGCATGTTTC CCTTCTAGAG
28151 ATCATTGTTT CTCAGAGCAT GGACCAAGA CTCCTGGGGG TTACCAAGAC
28201 CCTCTCAGGT AGCCCATGAG GTCAAATAT CCTAATAATA CTAAGATGTT
28251 AGTATTGTA AGGAAATATT TACTTGGTAA TAATACTAAT ATAAAAGATG
28301 TTTGCGTTTT TCAGTGATGA CATTGGCTCT GGTACAAAAG CATGTGGGTA
28351 AAATTGCTGC TGGCTTGGTA CACATCAAGG CAGCGCTAAG CTCCAAATTG
28401 TACTCATGGT GATGGCATTG TTTACCTCTG TGCCCTCACA GGAACAAAAA
28451 CAAGCCGTGC CATTTTATT GAAGATTGTC CTTGACAAA CAGTTAAAT
28501 GATTAATTTT TGA AAAATGT TGATCCATGA GTATTCCTT AAAAATATTT
28551 GTGAAGAAAT GGGAAGTTCA CATAAAACAA TGTTTTTTTT TTGTTTTTTT
28601 TTTTTTTTTT TTTTGAGACA GATTCTGGCT GTGTTGCCAA GGCTAGAGTG
28651 CAGTGGCGTC TGGCTCCAG GCTCAAGCTG TTCTCCCACT TCAGCCTCCC
28701 AAGTGGCTGG GACCTCCCAA GTGGATGCGC CATCATGCCT GGCTGATTTT
28751 TGTATTTTTT TGTAGTGACA AGGTCTCACT GTGTGCACA GGCTGGTCTC
28801 AAATCTCTGA GCTCAAGCGA TGCAATGTGCC TCAGCCTCCC AAAGTGCTGG
28851 AGAAAGCACT TTTTACTGCA TACTGGCTAG TGTGTTGGTT ATTTTGAGA
28901 AAAGAAAGC ATTTGTAGTT TTTTGAGTTG TAAGCTGAGC TAACTGCTTT
28951 ATTTTTTTCT GTGGAACACC ATTTCTTTTT TTTTTTTTGA GATGGAATAT
29001 TGCTTTGTTG CCCAGGCTGG AGTGCAAGTG CACAATCTCG GCTCACTGCA
29051 ACCTCCGCTT CTCGGGTTCAG AGCAATTCTT CTGCCGTAGC CTCCCAAGTA
29101 GCTGGGATTA TAGGCACCTG CCACCAAGCC CAGCTAGTTT TTGTATTTTT
29151 AGTAGAGATG GGGTTTCACC ATGTTGGCCA GGCTGGTCTC GAACTCCTGA
29201 CTTCGTGATC CGCTTGCTC AGCCTCCCAA AGTGCTGGGA TTACAGGCGT
29251 GAACTACTGC ACCTGGACAT TTTTTTTTTT TTTTAACTT GAAAGAACAG
29301 CTACAGACA GATTAGAACA GAATTGGCTA TTTGACAGAT TTTCTCAGAT
29351 GAACTGTGAT AGTCATTTCAG AGGGAAGTAG CTGCAAGCAT TTGTGGCTG
29401 AAATAAAATT TAAGTTTATC ATGGAATAAT AGAATTTGAA AAAACTTAGA
29451 GTTTACCACT TGACAGTATC CTAATAACAT ATGACTTTTC TGATGAGTGC
29501 CGATATTAAT GAAGGTATT TAAAAAATAT TAAATAATGT ATAATCTTT
29551 TTATATAACA GTTAAAAATA AAACCATGAG TACTAGAATA AAACATAGGT
29601 GGCTCTTTAA TCTTGGTTTG TGAAGGTATT TTTTAAAAATA AGAAAAAGC
29651 AAGAAATCAC TGCTAAATTT GACTATTAATA ATTAATTTAT CACAGGCACA
29701 AAAATGTTAG AAAACTAATG GCAATAGCAA ATATATATAT ATGAGGATTG
29751 GTATTCTCAA CATATAAGC ACATTGCAC ATCAACAAGA AAAGAATATT
29801 TCTCCTAATG GAAATAGTGG CAAATACATG AGCAGTCAGT TGA AAAAAGA
29851 AGTAATACAA ATTGCTGGCT GGGTGTGGGT GGGGTCACGC CTGTAATCCC
29901 AGCATTTAGA GGCTGAGGCT GCGGATCAT CTGAGGTCAG GAGTTCGAGA
29951 CCAGCCTGAC CAACATGGAG AAACCTGTC TCTACTAAAA ATACAAAATT

FIGURE 3J

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Docket No.: CL001196
Serial No.: 09/820,003
Inventors: MERKULOV, Gennady et al.
Title: ISOLATED HUMAN RAS-LIKE PROTEINS...

30001 AGCCGGATGT GGTGGCGCAT GCCTGTAATC CCAGCTACTT GGGAGGCTGA
30051 GGCAGGAGAA TTGCTTGAAC CCAGGAGGCG GAGGTTGTGG TGAGTCGAGA
30101 TCGACCATT GCCTCCAGC CTGGGCAACA AGAGCGAAAC TCCATCTCAA
30151 AAAAAAAAAA AAAAAAAAAA AAAAGGAAGT AATACAAATT GCCAATAAAT
30201 ATGGAAAAAA AAAAAGGCTC AACTTTATTT GTAATTAAAG GCCTTTAAGT
30251 TAACTTAGG TGTCATTTAA TTTTATTAA ATTGGCAAAT ATTAAATTA
30301 AGCATAATTC TTAAGCAACT CTCGGTAGGT GGAAGAATC TAGCTGTAGC
30351 CTCAGGTGTT TGTGCCTCAA GGAACACCT CTCTGGGATG TCCATTGCTT
30401 GAAGTCAAAG GTTTTCCAAT AATACCTGGA AACTATTTT AAAATGCTGA
30451 TCCCCATACC CTCAAAATAT TAATAGAGAC AATCGTGAGG ACTATAATAA
30501 AGAAATGTGC AATAAGCTCT GGGGGCACAG AGGAAGAAT CTATTGGCTG
30551 AGGAGTTGAA GAAATTGTTT GGACACTCAG TATTGCCTGA GCTCAAACT
30601 GAAGGATGAA TAAATGCCAC ATGACCTTGG GGCTGGGGAG TAAGTAGGGT
30651 TATGCAGAGA GAGATAACTG AGGCTTTTGG GCAGACGAAT AGTAACGGCT
30701 CAGGCATGGG AGTAAAGGTC ATTTAGAGAT TTACAAGAAT TCAGCATTTT
30751 TTTCTTTTTC TTTTTTTTTT TTGAGATGGA GTCTAGCTCT GTCATCCAGG
30801 CTGGAGTACA GTGGCATGAT CTCAGCTCAC TATAACTCCC ACCTCCCGGG
30851 TTCAAGTGAT TCTCATGCCT CAGCCTCCCG AGTAGCTGGT ATTACAGGCG
30901 TGTACTACTG TGCCTGGCTA ATTTTGTAT TTTTAGTAGA GATGGGGTTT
30951 CACCATGTTG GTCAGGCTGG TCTCCAACCT CTGAGCTCAA GTGATATGTG
31001 CACCTCTGCT CCCCAAAGTG CTGGGATTAC AGGCGTGAGC CACTGTACCC
31051 GGCCAAGAAT TCAGTATTTT TATCCAAGTA CCTGGGGGAT AGATGTGCTA
31101 CATGAATATT TATGTCATTC ATTTTGTCT CTGCATTTT TTTTTTTTTT
31151 TTGGTTTGAG ATGGAGTCTC GCTCTGTGCG CCAGGCTGGA GTGCAGTCGT
31201 GCAATCTCGG CCACTGCAG CTTCCACCTC ATGGGTTCAA GCGATTCTCC
31251 ATCTTGGTCT CCTGACTAGC TAGGTTTACA GCGGTGTGCC ATCACACCCA
31301 CTAATTTTTT GTATTTTATG TAGAGACAGG GTTTCACCAT GTTGGCCAGG
31351 CTGGTCTTGA ACTCCTGATC TAAAGTGAGC CTCCCACCTT GGCTCCCAA
31401 AGTGCTGGGA TTACATATGT GAGCCACTGC GCCTGGCCTC TATATACTTC
31451 TATAGTACCT GATACTTATT AGGCACTCAA TTACAACATA ACTTTTTTTT
31501 TTTTTTTTTT TTTTGAGACA GAGACATGCC TTGTCGCCTG GGCTGGAGTG
31551 CAGTGGCACA GTCTCGGCTC ACTGCAACCT TCACCTCCCG GGTTCAGTG
31601 ATTCTCCTTC CTCAGCCTCC CGGGTAGCTG GGATTACAGG CGCCGCCAC
31651 CACGTCCAGC TAATTTTTTG TATTTTTAAT AGAGATGAGG TTTCACCATC
31701 TTGGCCAGGC TGATCTCAA CTCTGACCT TGTGATCCAC TCACCTTGGC
31751 TCTCCAAAGT GCTGGTATTA CAGGTGTGAG CCATCATGCC CGGCCATAT
31801 TTCTAAAAAC ATTTTCTTAT AAAATGACAT TGCCATTATC AACCTGCAAA
31851 ATACATTTCC ATTTGGTTGT TTTCTTGCTT AGTCTTTTAA TCTAGAGTTT
31901 TATACCTTAT CTTTTTTAT TATATATTT TTATGTCAAT GACTTTTTGC
31951 AGAAACTGAA GCCTTGTCCT TGTAGATTGT CCAATATTCT AGATTGTGCA
32001 TTTTGTCTCC TTGTGATGTC CTTATGCTTA TTGTGTTGTC CCTCTTCTG
32051 TAATTAGAAG ACCTAGAACT GCACTATCCT TAGAGTAGCT ACTAGCTCTA
32101 TGTAGCTATT TAAATTTAAA TTAATTAATA TTGAAAAAGT TTGGTGGCTC
32151 ACACCTGTAA TCCAGCACT TTGGGAGGCC AAGGTGGGAG GATTGCTTGA
32201 GTGCAGGAGT TCAAGGCTTC AGTAAGCTAC GATTGTACT TAGCCTGGGA
32251 GACATCAAGA CCTGTCCCT TTAAGGGGGA AAAATAATTG AAAAAATCAA
32301 AAACCTAGTT TCCTTGTTTC ACAAGCTGCA TAGGGCTAAT GGCTACCATA
32351 TTGGCTAGCA CAGCTTATAG AACCTTTCCA TTGTCACAGA AAGTTCTGTT
32401 TGGCAGTGCC GTTCTCATT GACCTGATTC GATTAAAGTC CATCTTGTGTT
32451 GACAGAGTAC TTCTTAGGTG GTGCTTTGTG GTTCATATGA TGATAGCCTG
32501 GTCTGTTCAT TCATATATCT TTTACGAGA AATATTTTTA TTCCATTCTG
32551 AATAAAATTT CATGGCAGGT ACTTGCAAGA AGCAGTTATA ATTTTAAAGT
32601 TTAACATTAG GTTAAAAAAT TGACAGGAAA CATATATTCA CAGGTAAAC
32651 TTGTACACAA ATGTTTCATGG CAGCATTATT CATAATAGCC AAGAAGTGGA
32701 AACAAACCAA ATCAATTTAT GAATGGATAA AATGTTGTAT ATTTGTAGTA
32751 CATGTAATAT TATTCAGCCA ATAAATGGG CCAGGCATGG TGGCTCACAC
32801 CTGTAATCCC AGCACTTTGA GAGGCTCAGG CAGGGGGATC ACTAGAGGTC
32851 AGGAGTTTGA GACCAGCTG ACCATCATCA CGAAACCCTG TCTCTACTAA
32901 ACGTACAAAA ATTAGGCAGG CGTGGTGATG CACGCCGTGA GTCCCTACTA
32951 CTCAGGTGGC TGAGTCATGA GGATTGCTTG GACCCCGGA GACAGAGGTT

FIGURE 3K

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Docket No.: CL001196
Serial No.: 09/820,003
Inventors: MERKULOV, Gennady et al.
Title: ISOLATED HUMAN RAS-LIKE PROTEINS...

33001 GCAGTGAGCT GAGATCATGA CACTGCACTC CAGCATGGGC AACAGAGCAA
33051 CATCCTGCCT CAAAAAAAAA AAAAAAAAAA AAAAGAAGTA CTGTTACATG
33101 GTACAACATG GATGAACCTT GAAAACATTG TGCTAAATGA AGGAAGACAG
33151 ACACAGAGGG CCACATATTT TATGATTCCA TTTATACGAA ATGTCCAAAA
33201 TTGGCAAATC TAAAGAGAAA GTAGATTAGT GGTGTCAGG GAGTGAAGAC
33251 GGGTCTTTC TGGAGTGAAG AAAATGTCCT GGAATTCGTG GTTGTAGTTT
33301 GCAACCTTGT GAATGTATAA GGACCACTGA ATTGTCCACT TCAAAAGGGT
33351 GACTTTTATG TTAGTGCAT TATATCTAAA AAAAAATCA TAATTAGGAA
33401 GCAAGATTGA CTTCTAAGAA AAAGCGGAGT GAAATTGTTG TTTTGTGGTG
33451 AATAAATTGG GTGGGTGGGT CGCAAGAGTT TTGCTGATTA GTGATTAGAA
33501 AAATTATTCA TAATCATTGA AAATATAAAA TATTTTCTA TATGATGTAT
33551 GTAAAGAAAT TGGCAAGAGA TGATGTTTGG AAAAAATAAA GAATGCCTAT
33601 TGTAGAGATC TTAAGGAAAG AAACACAGT TAAGTAGTGC TTTGTAATCA
33651 AATATGAAG TAAGTACTGA AAGTGGATGG AGTGGCTGTT GTCAGCATGT
33701 TATACTTTAT ACATTTTATT CATAAATTG GACTGTAGAT AAAAGTAAAC
33751 TTTTCTTTTA TTTACTCTTG AACAACAGTT TTTTCTTTT CACTTAGACT
33801 TGATCTGCT CCACTGAACA ATACATTAA TTGTTAATTA TTTCCCCCTT
33851 CAGGATGATA CATATACAGA AAGCTACATC AGCACAAATG GTGTGGATTT
33901 CAAAATAAGA ACTATAGAGT TAGACGGGAA AACAATCAAG CTTCAAATAG
33951 TAAGTGACTT GGCTAGTAAT TTTTGTGAAA TTTATTTTGG TAAATTTGTA
34001 ATGTATTGTT ATTTTGTATA TATTTACTAT GCTAACAAAA TTGAATGTAA
34051 AATGTCTTAA GATTCAATGA CTTAAGATAG AATGGTAGAA TAAGAATTAC
34101 TTAGATTAAA AATAATATTT TCAAGATTAC TTAAGCCTCA TTGAATTTTC
34151 TGTCATGAA GCAGAGAAAC TCATGTTTAA AGTCAAACCT GGTCTCTATC
34201 TTTTCTTTT ATCAGTGGAA ATCTAAGTTC AAGTTTACCT TGTCTACAC
34251 TGCAAAATGT ATAGACCATT TTGTTTGTG TTTTACTGTG CTAAGTGCAT
34301 GGAACATTAA AGGAACCTTA GGAAGAGATT CTTCAATGTG GGCTCAGTTG
34351 AAGAGAAATA CTTATGTAGT TCTAAGTATT TTTATAGAT AGTGTGCACC
34401 AACTCTGTAG AAACACAGAA TTTTGTGGA AAAAGGAACT TAGTTTTTGT
34451 AACATGTTCA TTTTACTGCT CAAAAAACG AATGCTGAAA GATTTAATGA
34501 CTTGCCTACA GTTACTGGTA GAACCAAGTG ACCGAAGCTC TGTCTTCAAT
34551 ATTTTGTGTC TGTGTGCCAT CCTATCCCC TTATCCATCT TTACACCCCC
34601 AGCCCCCAAT TAAATATAGG CAATTATAAT AGTTCAGTTG TGCCTCTTCA
34651 GTATGGGTCT GAGTCCTGTC AGTGTGGGCA TATCTGTGGT CTTTAAAAAA
34701 ATAAATCTCT CAGTATTTT CAGAGTAGGC TATTAGCAAG AAGTAGGCTA
34751 TAAACACAGG AAACCAAGTGA CTGCCCTTT TCATGGAATC GATGACACAT
34801 GGAATTGGAA GGAGTCTGTC ATTAGAGTTC AGAAGACTTA GATTGTGTGT
34851 CTTGGTTCTA GTATTTACCT GTTAGAGAA CATGGGTTTG TGTCTCTGGG
34901 GAAAAGGCGG AAGTAACCTT GAGACCCAGT TTCCTTCTA AAATGTGTGT
34951 GATGACACCT GATTTACTAA TTTATAAGCT AGTTGTGAGA ACCAACTGTA
35001 ATAGCTTTGT GTATGTGACA ATACGTGTGA AAGCCCTTTG TAAACTTTTG
35051 GGCAGCATAT AGATACTACT TATGATATGA CATGCCCAGA TAAATGGGTG
35101 TTTGATAGGT TAAGTTGCTC CCTTTTCTTA CATGACTCTG ATGAGGAAAA
35151 GAAGGTATGT TAACAAAAGA TAGGTGGCTG TGGATATTGA TATAAGTAAA
35201 CACACTTGAT GTGTCAAATT AGGACTGCA AGGATTAGT TTTCAGAAAT
35251 AGCTTGAAAT ACTTTCAATC AGTGAACAAA TTACCCTCCA TATTTTCTC
35301 CACGATATAA GTACAGTCTC AACCTTTTAT TTGGCACCAT AAAGAGCACA
35351 TAAAGATCTA CCAAAACTG TACTTTAAAG CACTGGTATG GAATAATTGT
35401 ATTATGTGTG ATCATTGGTG TTTATAAGAT TTGGGTGTGT ATTCGTGTGT
35451 GAAACATTCA TATTTTGTTA CTTTCTGTG GCTGGAAGGG ATCTTATAGG
35501 AACTGTCTT TCATCTTTGT CTGTCTTTCA TCTTTAATAG GAATTTCTTT
35551 TCCATGCCTG AAGGCCTCAT TTTGAACATT TTGTTTGTGT GTTTTCTTAT
35601 TTTTGTAGAT ACAGTATTGC TCTGTCTCCC AGGCTGGAGT GCAGTGGCGC
35651 GATTGTAGCT CACTGCAACC TCCGCTCCT GGGTTCAAGT GATTCCTCTG
35701 CCTCAGCTC CTAATAGCT GGGATTACAT GTGTGTACCA CCATGCCCGG
35751 ACAATTTTCT TTTTCTTGTG ATGGAGCCTT GCTTTGTGCG CCAGGCTGGA
35801 GTGCCAGTGG TGCAATCTTG GCTCGCTGCA GCCTCCGCCT CCCAGGTTCA
35851 AGCAGTTCTC TTGCCTCAGC CTCCTGAGTA GCTGGGATTA CAGGCGTGCG
35901 CCACCACACC CTGCTAATTT TTTGTATTT TAGTAGAGAC AGAGTTTCAC
35951 CATGTTGGTT AGGCTGGTCT CGAACTCCTG ACCTCGTGAT CTGCCTGACT

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FIGURE 3L

APR 14 2003
PATENT & TRADEMARK

Docket No.: CL001196
Serial No.: 09/820,003
Inventors: MERKULOV, Gennady et al.
Title: ISOLATED HUMAN RAS-LIKE PROTEINS...

36001 CGGCTTCCCA AAGTGCTGGG ATTACAGGCA TGAGCCACTG TGCCAGCCT
36051 TCCGATAATT TTTGTATTTT TCGTAGAGAT GGGATTTCGC CATGTTGGCC
36101 AGGCTGGTCT CAAACTCCTT ACCTCAAGTG ATCCACCCGT CTGGCCTCC
36151 CAAAGTGTCT GATTACAGG CGTGAGCCAC CAGCCTGGG TTTTGAACA
36201 TTTTAAAGAA GCTTACCATT TTTTCGAAAT AGCTAGTTCC ATTTTACACA
36251 TAACTTCAGC TAGGCATGTT GCCTCATGCC TGTAATCCCA GCACTTTGGG
36301 AGGCCGAGGT CAGAGAGTCA CTTGAGGCCA GGAGTCAACA TAGCTCCTGT
36351 GACCAGCCTG GTCAACATAG AGACTCTATC TCTACCAAAA AAAAAAAAAA
36401 AAAAAGTAAC CAGGTGTGGT GGTCCATGCC TGTAGTCCTA GCTCCCCAGG
36451 AGACTGAGGT GGGAGGAATG TTTGAGCCCA GGACTTCAAG GCTGCAGTGA
36501 GGCAAGATTG CACCATTGCA CCCCAGCTTT GGGGACAGAG TGAGAGACCC
36551 TGCTCAAAA ACAAAATAAG GCTGGGCGCA GTGGCTGTCC GGGCGTCGTG
36601 GTTACGCCTT ATAGTCCTAG CACTTTGGGA GGCCAAGGTG GGCAGATTGC
36651 CTGAGCTCAG GAGGTCTAAG ACCAGCCTGA GCAACATGGC GAAACCTCAT
36701 CTTTGCAAAA CATACAGAAA AAAACAAAAA AAACCACAAA ACCTCTAGTT
36751 GCCAGTTATT TTTTATTTT ATTCTAGTG ATTCTTCTTT TTTTCTTTT
36801 TCTGAGACAA AAATTTCACT TTGTCTCCCT CGCTAGAGTG CAGCGGTCAG
36851 CTCACTACAT GATCTTTTGA GAGACATGTT AATTCTTTAT ATTGAGCTGA
36901 AGCCTGTTTC TTTTACTTCT GTCTCTTCTT ATTCCTCCGC CTTGTAGAGC
36951 TGCCTGAATC AGATTAATTC CTCTTTTATT GGCAAGCCTG CCCTTCAGAT
37001 TGATCTTATC ACAACCTTTC TTCTACCTCT GAAGTCTCTA TTCTTTCCTG
37051 TAATGATATT TTCAGAACCT TGTGCAATTT GGGTTATTCT TACATTTTAT
37101 AAATGCCCTT TATTAAATTT GATTTCTTAA ATCAAGTATG AGATAAACA
37151 CATGAGGTAA ATCCTGTCTT GATTTGGAGC CTGAATGAAT TTCTCTCTTG
37201 AACTTCAAGG GCTCATGGCC CTTCTTATT ATTAATCAAA GACAACCATT
37251 TGTGTTTCA GTAGCTATAT TATTTCTAGT TTGGGTCTTA AGGTTTTTGA
37301 TTTGCTTGTT TTTTCTTTT TCTTTTCTT TTTTGTGAGA CGGAGTTTCG
37351 CTCTGTGTC CCAGACTGGG AGTGCAATGG CGTGATCTCG GCTCACTGCA
37401 ACCTCCGCCT CCCAGGTTCA AGCGATTCTT CTGCCTCAGC CTCCCTAGTA
37451 GCAGGGATTA CAGGCATGTG CCACCACGCC GGGCTAATTT TGTATTTTTA
37501 GTAGAGATGG GGTTCCTCCA TGTGGTCAC GCTGGTCTCG AACTCCCGAC
37551 CTCAGGTGAT CCGCCTGCCT TGGCCTCCCA AAGTGCTGGG ATTACAGTCG
37601 TGAGCCACGG CGCCTGGCCG ATTTGCTTGT TTTTAATTAA AATAGGGGCC
37651 TTGCCCAGGT GCAGTTGTTC ACCCCTGTAA TCCCAGTACT TTGGGAGGCT
37701 GAGGCAGGCA GATCTCTTGA GTTCAGGAGT TCAAGACCAG TATGGGCAAC
37751 ATGGTGAAAC CCTGTCTCTA CCAAAAACAC AAAATTCAAG CAGGCATGGT
37801 GGTGTGTCCC TGAGTTCAA GGTACTCAGG AGGCTGAGGT GGGAGGATTG
37851 CTTGAGCCCG GAGATGGAGG TTGCGGTGAG CCAAGATTGT GCCATTGCA
37901 CTCTAGCCTG GGCAACAGAG CGAGACCTTG TTCAAAAAA AAAAAAGAAG
37951 AGGGTCTCAC TTTACACTTC TGTGACTGGT GTTTTAAAAA TCTAAACACA
38001 GGCCGGGCAC GGTGGCTCAC GCCTGTAATC CCAGCACTTT GGGAGGCAGA
38051 GGCACGCAGA TCACAAGGTC AGGAGTTCGT GACCAGCCTG GCCAGCATGG
38101 TGAAGCCCAT CTCTACTAAA AATACAAAAA AATTAGCTGG GCATGGTGGC
38151 AGGTGCCTGT AATCCCAGCT ACTTGGGAGG CTGAGACAGG GGAATCACTT
38201 GAACCCAGGA GGCGGAGATT GCAGTGAGCC AAGATTGCGC CATTGCACTC
38251 CAGCCTGGTG ACAGAGCGAG ACTCCGCTG AAAAAAAAAA AAAAAAATCT
38301 AAACACAAGA TTTTACTTTT AATCCTATCA TTCTCTCTTG CTTGGCTTCA
38351 GTAATCCTTC AAGTTTCTA GGTCTTTTCA AAATCTTGAT TCTGTTGATT
38401 TATATTTTAA TTATCTTTT CTTTCAGCTT TTCCTGTTCA GGTGTGACAT
38451 CTGGGTCTTT ATCTGAGTTT TATTAGATTA TAAAACATT AGCAAGATAG
38501 GGCAGGTACT GAGTCCAGTT GTACACCATG GAAGGCCTCT TTCTGTGATT
38551 GTTCATTATC GAGGCTTTAT GAAAATGTCT ACATTACACC AGGCACTTGG
38601 AGGTTACAGA GATGAATAAA ACATAGTCCA TTAGGAGGCA GACAATGGGA
38651 GAGACAAACA TGGGAAAAAG TTA CTCTGAT TATGAGGAGT AATGAGAATT
38701 ACATATGAAG GAAAGTATTG TTAGTACTGT TAGGATTTAG TGTGAGGAAA
38751 GTTTTCAGAG TAGCAAGGAA ACATCAGAAA TTTTACTCTT TCTGCCAGGC
38801 ATGGTGATG TATTATTCTG TTCTCAGCT GCCACAAGGA ACTGACCAAA
38851 ACTGGGTGAT TTATTAATAA AAAGGTTTAA TTAGTCTATA GTTCTGATG
38901 GCTGAGGAGG CCTCAGGAAA CTTACTGTGG CAGAAAGGGA AGCAGGCACG
38951 TCTTACATGG CAGGAGGCGA GAGAGTGTGA AGGAAGTGAA GGGGAAGAG

FIGURE 3M

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Docket No.: CL001196
Serial No.: 09/820,003
Inventors: MERKULOV, Gennady et al.
Title: ISOLATED HUMAN RAS-LIKE PROTEINS...

39001 CCCCTTATGA GACCATCAGA TCTGTGAGA ATTCATTAC TATCACTCGA
39051 ATGGGGGAAA CCGTCGTCAT AATCCAATCA CTTCTCCATA ATCCAATCAC
39101 TTCCCTCAGT GATTACAAC TGAATGAGA TTTGGGTGGG GACACAGAGC
39151 CAAACCATAT CAGTGCCTGT AGTCCCAGTT ACTTGGAGGC TGAGGCAGGA
39201 GGAACACTTG AGCCCAGGAG TTCAAGATCT GCCTGGGCAA CATAGCAATA
39251 CCTCCATTTT GGATAAAAAG GAAATTTTAC TTTTGGGTG CCATTGCTTA
39301 GTTTAATCAG CTGTAACCTC TTGTGACTT TTAGTCAAAA AACAATTTT
39351 CCTTCTATCT TTGTGAAAGA GGTGAGTGA CAAGGAAGAA AAGGAAACTT
39401 GCTTTATTGA GCAGCTTCTA TAGTCAGGCA CATTTTACAA ACATTAGTTC
39451 ATTTAAACCC CTTTAGCTGT TGTACAAGGT GAATGCTATC TAGCATTAC
39501 AGATGAAGAA ACTGTTAGGT GACTCTCCCT AATATTAAAT AACCAGGAAC
39551 CTGGATTGTA TGTTTTGAAG TCAGGGTAGC TTGATCCTCG AGTTCATGCT
39601 TCCTCCAAGG ATACACTGAA AGACTTTGAG CCTCTTTTTT TTTTTTCTC
39651 TTTTTTTGAG ACAGGATCTG GCTCTCTTGC CCAGAGTGCA GTGGTGTGAT
39701 CTCAGCTCAC TGCAACCTCT GCCTCCTGGG CTCAAGCGAT TCTGCCTCAG
39751 CCTCTCGAGT AGCTGGGACC ACAGGCGCAC GCCAGCATAC TTGGCTAATT
39801 TTTGGATTTT TAGTAGAGAC AGGGTTTAC CATGTTGGTC AGGCTGGTCT
39851 CGAACTCCTG AGCTCGTAAT CCGCCCGTCT CGGCCCCACA AAGTGTGCGG
39901 ATTACAGGCG TGAGCCACCG ACCCAGTCCC AACAGTTTTT TAAAACCCAG
39951 AACTATAATG CAATAATGTT AGCATTGTGT TTTGGAGTTT GAGCCTAAAT
40001 GGTTGAAGTG CAGTAAATG TTCTTAAAT ACCTTTTATG AAAGTATTTG
40051 GAGTCTCTTC CTTACATTTT TTTCTCTAGC ATGAAGACAA CACCTAGCCA
40101 GGCATGGTGG CTCATGCCAG TAATGCCAGC ACTTTGGGAG AATGAGTTAG
40151 GATAATTGCT TGAGTCCAGG AATTTGAGAC CAGCCTGGGC AATGTAGCGA
40201 GACTCTGTCT CTACAAAAA GAAAAAATTA GCCGGGTGTG GTGGCATGTG
40251 CCTGTAGTCC CAGCTACTCA GGAGGCTCAG GTGGAAGGAT TGCTTGAAGT
40301 GGGAGGTTGA GGCTGCAGCG AGCCATGATC ATGCCACTGT ACTCAGCCTG
40351 GATGACAGAA TGAGACGCTG CTTGAGAGGG GAAAAAAG ACACCTGCTT
40401 GGGATGATTA AAGTTCTGTC TTGACTGGTA GTTATTGAA TTAGGTCCCT
40451 CCAGTGCTTT TAATCATGTT AGAATGTGCT AGCAAGTGAG TTTGTCTTAC
40501 ATGGAAGAGT TCTGTGTTCA AGGGCTTTCG GCCAGTGGCA TTCCTAAACA
40551 CAGTATTAAA GGCGGTAGGG AATGTGAAAA ATGTGACATA GTTCCGTCTC
40601 TCAACAGCTT GTAATTTTAT TATTATTATC GTAAGCTCAA TTGTAGGTAC
40651 TACTTCTTTT CTGGACTTTC AGGTGCTTAT TACCGTGCAA TTTAGTGGTA
40701 TGAGTTGAGG ACTAATGTTT CTATATCACA TCCTGATAAT CTCCACAGTT
40751 ATGAAAACTA AACTATTTCC CCTCCCTCCT ACACCTTTCC CCAACTTTAT
40801 TTTAATGGAA TTGTTTGGAT TTCTTGATG TTTTGTATA GTGGGACACA
40851 GCAGGCCAGG AAAGATTTTCG AACAATCACC TCCAGTTATT ACAGAGGAGC
40901 CCATGGCATC ATAGTTGTGT ATGATGTGAC AGATCAGGTA AGTTCCAAGA
40951 GGAGATTGTG TTACAGTGAC CAAGTAGGAA GCCATTATTT GATTAATGTC
41001 AGATTCAATTT ACTACTTCAT ATATAAGCCA TCAGTATTAA TTTTATGGCA
41051 GAAAACTTTG TCCACTCTCA AATATAAATG TGAATCACTT AAAAGACATT
41101 TGTTTTCTCT TAATAAATAA AAGATTAGTA ATTAGTTTAA CGTTTGCTTT
41151 CAAGGGATTC TGGTTGTATT TATTGTCAAC TAAATAACTT TGATCAAATA
41201 GCCAAGACTC TAACATATAG GCAAGAGTTT GTAGGGAATC GTGAGTTGCT
41251 TGGCTTATAC TGTGTTCTTG GTGTTAAGTA TTAACAGGAA TATGGCCTGG
41301 TAATTAGAAC TTGTCCATCA GAATTGCCAA AAGTGGGATT CGGGGGTCTC
41351 TGCCTATGGA GGATGTGGTT CAGAAATAAA GAATTTGAAT AGGATAAGCT
41401 GTAGGAGGAT CTTAGTATGA GAATGAGTAT CTGAAGATTA GCTGTGAGAG
41451 AGGGCAGAGC GATGGAGGGA ACAATGTGGG ACAGTGTGAA GCATGTGATC
41501 CAGGGGCCAT AACTTTTTTT GTTACTATTT TTTTAAATCA GAAACTTAGA
41551 TTTCACTGTC CTTTCTATCA AAGAAAAGGA CAAAAGATAA ACGTTCAAAA
41601 TTGGAATTTA TTTTCTTTT GGCAAAATGT AATCTCACC TCTAATGAGA
41651 AACTATAGCT AATTAGGAGA TAACTTACAT GTAAGCATTT AGATTCACTG
41701 CCATTAGAAG TGCTGGGTGG GTGATATCTG CAGGAGAAAA AAATGATGCT
41751 AGTTTAAAAA ATCTCTACTA TTACCGTGAA ATATTTTAA ATGAAAACTT
41801 TCGTCTCTA AATATGACTG TGGAAAAGAA AATGAGTATA TTTAATAACA
41851 TCTTTTGACA TCTCTAGTAG TAACAGTAGG TCATCTTATT CATAAACCAA
41901 AATTTTACCA AATTTCAGGC CAGGCGCAGT GGCTCATGCC TGTAATCCCA
41951 GAACTTTGGG AGGCCGAGGC GGGCGGATCA CCTGAGGTCA GGAGTTAGAG

FIGURE 3N

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Dock # No.: CL001196
Serial No.: 09/820,003
Inventors: MERKULOV, Gennady et al.
Title: ISOLATED HUMAN RAS-LIKE PROTEINS...

42001 ACTAGCCTCG CCAACATGGC AAAATCCCAT CTCTAGTAAA AATACAAAAA
42051 TTAGCCAGGC GTGGGGGCCC GTGCCTGTAA TCCTAGCCAC TTGGGAGGCT
42101 GAGACAGGAG AATCGCTTGA ACCCAGCGGG CAGAGGTGTC AGTGAGCCGA
42151 GATCGCGCCA TTGCACTCCA GCCTGGATGA CAGAACAAGA CTTTGCTCTCA
42201 AAAAAA AAAAATAA ATCAAATTC AAAACCAGGT
42251 TTTGTAGTAC ATTTAAATG CATATTCCAA AGCAGTTGGG TTTGCCTGCG
42301 TTGCAGTTTA ATATTAAGCT ATACTTCCCT TTCAAATAAG GTATTTTCAT
42351 CGTTAAGCCT GTAAATTCTA GTTGTCAAT GTTTAGATAT TTATAGTCAT
42401 TTAAATATAT CTGTTTACGG CCAGCTGCAA TGGCTAACAC CTGTAAACTC
42451 AGCACTTTTT GAGGCCAAGG TGGCCGATT GAGCTCAGGA GTTCGAGACC
42501 AGCCTGGGCA ACATAGTGAA ACTCCATCTA TACAAAAAAT CCAAAAAA
42551 AAAGACAGGT GTGGTGCCAT GTGCCTGTAG TCCCAGCTAT CCCGAGGCG
42601 GAGGCGGGAG GATGGCTTGA GCTTGGGAGG TCGAGGGTGC AGTGAGCTGT
42651 AATTGTGCCA CTGCACTCCG GCCTAGGTGA CAGAGCAAGA CCCTGTCTCA
42701 AAAAAA TCTTCTCACT CCTTAGCAGT GGTATTTTG TAGCTAGAGT
42751 TGTCTCACTA GCTCTTTGTT ATTTGTCTGT TAGGTCAGGA ACGATGTTTC
42801 TGTTTATTCC AGAACTATAT TATCGAATA TATTATCAGT CTTTCAAATG
42851 TCTTTTAGG AGTCCTTCAA TAATGTTAAA CAGTGGCTGC AGGAAATAGA
42901 TCGTTATGCC AGTGAAAATG TCAACAAAT GTTGGTAGGG AACAAATGTG
42951 ATCTGACCAC AAAGAAAGTA GTAGACTACA CAACAGCGAA GGTATGTTTA
43001 AAGTTTAATT TTCATACTGA ATTTGAAGGT GTTGAATTAT GTATGGGTTT
43051 TGCAGTAACA GTAAGGCCAC AGCCTTTTAA AAATATGTGC ACTAGAATAC
43101 TGTGACAGTG ACAATTTGTG TAGCATCTGT TTGGATCCAA TGAACCTAGT
43151 TCCTCACGCT CCATTATGGA TGGTAGAAAT GCAGTAGAA TTAGTGAAAA
43201 AGATTTTCA GTGTTAATTG TGCCTCATTA TTCTCTTAGG AATTTGCTGA
43251 TTCCCTTGA ATTCGGTTT TGGAAACCAG TGCTAAGAAT GCAACGAATG
43301 TAGAACAGTC TTTATGACG ATGGCAGCTG AGATTA AAAA GCGAATGGGT
43351 CCCGAGCAA CAGCTGGTGG TGCTGAGAAG TCCAATGTTA AAATTCAGAG
43401 CACTCCAGTC AAGCAGTCAG GTGGAGGTTG CTGCTAAAAT TTGCCTCCAT
43451 CCTTTTCTCA CAGCAATGAA TTGCAATCT GAACCCAGT GAAAAACAA
43501 AATTGCCTGA ATGTACTGT ATGTAGCTGC ACTACAACAG ATTCTTACCG
43551 TCTCCACAAA GGTGAGAGT TGTAAATGGT CAATACTGAC TTTTTTTAA
43601 TTCCCTTGAC TCAAGACAGC TAACTTCATT TTCAGAACTG TTTTAAACCT
43651 TTGTGTGCTG GTTTATAAAA TAATGTGTGT AATCCTTGT GCTTCTCTGA
43701 TACCAGACTG TTTCCCGTGG TTGGTTAGAA TATATTTTGT TTTGATGTTT
43751 ATATTGGCAT GTTTAGATGT CAGGTTTAGT CTTCTGAAGA TGAAGTTCAG
43801 CCATTTTGT TCAAACAGCA CAAGCAGTGT CTGTCACTTT CCATGCATAA
43851 AGTTTAGTGA GATGTTATAT GTAAGATCTG ATTTGCTAGT TCTTCTTGT
43901 AGAGTTATAA ATGGAAAGAT TACACTATCT GATTAATAGT TTCTTCATAC
43951 TCTGCATATA ATTTGTGGCT GCAGAATATT GTAATTTGTT GCACACTATG
44001 TAACAAAACA ACTGAAGATA TGTTTAATAA ATATTGTAAT TATTGGAAGT
44051 AATATCAAAC TGTATGGTGA TAAGTATTGT TTTGATTCTT ATGGTTAAAG
44101 GGAAATAGAG CCTTGCATTA TATTCAACAC AGCCATTGT GTGTGCACAA
44151 TGCAAACTAA GGTATTCTAG ACCTATCTTA GAGCAGCATC CAGTATTGTC
44201 TTTCTAGATA ATATGCCCAA TAACATGACC TAGAGGGGCT TCTGTGCTGT
44251 GTAGGGATT AACCACCTC AGTGGTTCAG GGAGCTCAAA CTATATGTAA
44301 AACAAGTTTA GAATGTATGC TATCTAGCCC GTTATCTCTG ATCCTTCTCT
44351 AAAACCATT GAAATAGCTT CATTGATCAA CATTTCAATA ATGCATCTGT
44401 GGTAGAGGTA GAAAGCAGCA CCTTCTCTAA TTGGCAAATG ATCAGACTAA
44451 TGTGTGCTAA TGTTTTCTT CCATGCTTTC AGTCAGATTC AACTATTTTA
44501 TCCTCCACAG TTGCTTAACT TGGTGTGGA GGAGGGTTTA AGCATTAAGA
44551 TAGGAAGCAG GAAATTTGAT TGCTCTAAAT TTAGAAATTA TATCCCTAAA
44601 AATTAAAACA TGAATACTGG GTGGTAATGA TAATTGAGGC AAATGTATTT
44651 ATTTTGGTGA CATTTTGCAT ATATGAAGAT TTTCTGAAAT AGGACCTTCA
44701 AGATCCTAGG GGGTTTGT TGGTTTTTAA TTGTGAGGAA TAAAAATCT
44751 TCTGCCACA CTGGCATT T AAGGTGACTG AGGTCAAACG TTGTTTCTCT
44801 AGGTTGAAAT AGCAGCCAAA ACATTCTTCA CGCAGGGGCT TGGGATATGG
44851 CTGCTGGCAA CACATTTTGT TGTGGGCTCC TTAATTTAAT GATAAAATTT
44901 AAGCTAAACA CAAGCCAAA ATGAATAGGT TTTTAAAT TTTATTTTCT
44951 ACTAAACAGG CAATTGAAAT ACATGGTACA AAAATAAGTG GTAAGATAAT

FIGURE 30

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Docket No.: CL001196
Serial No.: 09/820,003
Inventors: MERKULOV, Gennady et al.
Title: ISOLATED HUMAN RAS-LIKE PROTEINS...

```
45001 TGTAAGATGA AATGGACAGA ATATTCAATT TTCCATCTAT GAAAATTTC
45051 CAATAAAAT CATAGTTTAC TTTGTATTAT AGGCGTGCTT GGTGGATCTA
45101 TTCATCCTCA CATAAGGCAA CTGACAAAT CCTGAAGTTA CCAATAGTTA
45151 TTTTGGTGAA GATCTTTAAT GCTTCAGAAG TTTTGTTTT GCCTTAATAC
45201 AGTATAAAGG GGGAAAGAGT TCAGAACTA TTTTCTAAAG TAGCTAAATG
45251 ACACAAAACA AATGTCAAGA TACTGTGATG CCATGCCGTG CACTTCATTT
45301 TTACACAGTA AAAGTTGTTT AAATGTGTCAG CTTATTCTTG GTGAGTTAGC
45351 GGAAACATTA CATGAACCTA AGATGAGCAT ATTACAGAC TTAAGTTTGG
45401 AAAATTCCAG CGTTCTTTTC CCCATGGCAG TAAAGATTGG GATTTACAAC
45451 AAATTTCAGC ATGCCTTAAG ATTTGCTTCT ATGTATACGC CAATAAATGT
45501 GGTTCTGGAA AAAATATATA CCCCTTTATA CCCCCATTTT CAAGTACAAA
45551 CGGTTCAAAG CTACTACAGG TTTTAATAAT CTGTTCACCT AGTAAAGGGA
45601 ATTACCACTT GTTCTAAATA TAAGGTGCTG CCATAAATTA GTTTACATAG
45651 TGAAGAAGAG TGTCTTAAA TCTAAGCAGC TGCACACTCT GTGAAATCCT
45701 TTCAGAATGA TAGTCATTGT GGTCTGAGCA GTAATTTCTT ATTCTTCGAC
45751 CTTGGATTGA ATTTCCCTTA GCCTACATCT TGCCTTTCCA GCATATCTTA
45801 CCTCAAACCT TCTTTGTGTT CCATTCCCAC CTAAGCTTCA AAATAGCCCT
45851 GTGTTGACGT CGTCTTCCAT TTGCTGAGCT TACCTATGGA TCTCCAAGAA
45901 CCCAGATCTT GAAACTGCTG ATCCAGCTTT GAGTATCATC ACTTCCCTGT
45951 GGATTTAACT TCCATTAATT TTAAGGGACT ACTAAGTTAT TCCAGTGTGG
46001 CATCACAGTG CAGTTAGCAA GCTCAGCTAC TTGACTCTAA TTTGGCCATG (SEQ ID NO:3)
```

FEATURES:

Start: 2181
Exon: 2181-2203
Intron: 2204-27090
Exon: 27091-27163
Intron: 27164-33853
Exon: 33854-33949
Intron: 33950-42859
Exon: 42860-42991
Intron: 42992-43239
Exon: 43240-43434
Stop: 43435

CHROMOSOME MAP POSITION:

Chromosome 2

ALLELIC VARIANTS (SNPs):

DNA				Protein		
Position	Major	Minor	Domain	Position	Major	Minor
397	T	-	Beyond ORF(5')			
2326	A	G	Intron			
3486	C	A	Intron			
6651	-	A	Intron			
8190	T	-	Intron			
8281	T	C	Intron			
11546	A	G	Intron			
11670	C	T	Intron			
11688	A	G	Intron			
14938	A	C	Intron			
22261	G	A	Intron			
22852	G	A	Intron			
27253	A	C	Intron			
28098	-	A	Intron			
28597	G	T	Intron			
31431	C	T G	Intron			
35704	C	T	Intron			

FIGURE 3P

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Docket No.: CL001196
Serial No.: 09/820,003
Inventors: MERKULOV, Gennady et al.
Title: ISOLATED HUMAN RAS-LIKE PROTEINS...

35728	C	T	Intron
36690	C	T	Intron
41002	G	C	Intron
41033	A	G	Intron
43161	C	T	Intron
43765	A	G	Beyond ORF (3')
44713	G	T	Beyond ORF (3')
44831	C	T	Beyond ORF (3')

Context:

DNA
Position
397

TGCTCTGTCGCCCAGGCTGGAGTGCAGTGGCCTCTCGGCCCACTGTAGCCTCCGCTCCC
GGGTTCAAGCAATTTTCTGCCTCAGCCTCCCGAGTAGCTGGGATTACAGGCACGCGCCA
CCATGCCTGGCTAATTTTGTATTTTGTAGTAGAGACAGTGTTCACCATGTTGGCCAGGC
TGGTCTTGAATTCCTGACCTCGTGATCTGTCCGTTTGGCCTCTCAAATTCCTGAGATTA
CAGGCATGAGCCACCGAGCCTGGCCAGTTTTCTGAGTTTTTATTTGAAATCAAAATAAGC
[T, -]
TTTTTTTTTTTTTAAATGGGCTTTAGAGTCCAGGGTAACGAACACTTTTTTGGTGCCTATT
ACTGAACCATTACAGGTATTTCTGGGGTGGTGACCGTGTTTATTTAGAAACCAACATGT
TCATTTAGAAACCAACTCGGGTAACTTTTGATAAGTTCATCAACTAAGGCCCATGGCA
GAATTTGAGGGCTAAGGGGTGTAATTAGTGTATGGGTAGAAATAAGTGCCTTCTTTCTAT
ATTTTGGCGTTGTAGGAATTTAAAGTGATTCTGCAGTAAGTCTCAGGAGACAATTTCTTT

(SEQ ID

NO:16)

2326 GCTGATTGTGTTCTAGGGGACGGAGTAGGGGAAGACGTTTGTCTCTCCGGAACAGCCTAT
CTCATTCCTTTCTTCGATTACCCGTGGCGCGGAGAGTCAGGGCGCGGCTGCGGCAGCA
AGGGCGGCGGTGGCGGCGGCGGAGCTGCAGTGACATGTCCAGCATGAATCCGAATAGT
GAGTTAGAGAGACCCGTCGGCTGGGTCCGTGGGCCAGCTTGGGGGATCTTAAAGGGG
TCGAGGAGGGTTGGGGCAGAAGTCGGGGCATCGGCTGGGGTGAGGCGAGGGTGATGGGT
[A, G]
GGAGAGGCTGGCGGCGGGAGTGGGCCCCATTGTCTGACGCGGAGGGGCGGCGCGCGG
GGGAGGGGTGGGCGGAGGGGTGAGCCGCGCGGCTGGACCGGGTCAGGTTAGAGGGC
CTGACTGCGGGGCGGGTGCTGAGGAAGCCTGCGAGGGGCTGGGGCGGTGTGAAGGGGT
ATCTTCTCTCGGAGGCAGTGACTTTTGAAGGAGGACTTGTCTCTAAGGGGAGGGGATGGG
GTGGGAGAGCCCTTCTAGAGGGCACTGTACAGCCCTGCGCCGCACTCTGCGGAGCTGTCT

(SEQ ID

NO:17)

3486 CTGGGAAGTGGTGTTCACCTCCCTTGGGTAGAGTTTGTGGGCTCTCTCAATGGCCCTT
TAAAAATTTCTCTACAGTTTACATGCATGTAAAGTAATGAATAATTGGAAGAGACCGAA
TTGGTATTCTTTTTCAGTGTCAAAGGCCTTTGAGGGATGGGGGAAAAATCAGTATTGTG
TAAAGTTGAGTTTATTTGCTGGTTTGGTCAATTACTGCTAGACATTTTCCCTAAAAGG
TCCACCCACAGTTTAGCTGACTGTATGTGTGCATATGTTGCTGCTTGCATAATGCTTA
[C, A]
AAGTTTTGTAAATAGTGTGGCTTGAAGCTGAAATCTTTTGCACTAAACAGAAACCGTAGTA
TTTTATTAGAATTTATGCTTTAGAAGTTGAGGGTAGTGTCTTGTAGTGACATTTGCTG
TGTTGACAGTTTAAAAAATTTTTTTTCAAGGGCTCCAAGGACAAAGTTGGTTTGCAC
AGTTGAACGAGGTGAACCTTGAAGTTCTTAATTTAGTAGTTTTCTTGGTAACAATAAAGA
ACATGGATTACTGCTTTATCGAGGTTTATAGACCTCTACTGTTTCAAGAAATTTTCTGAA

(SEQ ID

NO:18)

6651 TTTGAGCATTAAAGAAATGCTTAACATGGCCAGGCGCAGTGGCTCACGCTGTAATTCT
CAGCACTTTGGGAGGCGGAGGTGGGCGGATCATTGAGGTCATGACGAGCTGGCCAACA
TGATGAGACACTGCCTCTACTAAAAATACAAAAATTAGCTGGGTGTGGTGTGCAGCCT
GTAATTCAGCTACTCAGGAACCTGAGGAGGAGAGTCACTTGAACCTGGGAGGCGGAGG
CTGCACTGAGTCCAGATCATGCCACTGCCTCCAGCCTGAGGGACAGAGTGAGACTCCTC
[-, A]
AAAAAAAAAAAAAAAAAGAAAGAAATACTTAACATTATTCTCGTGATTATTCTCATAAC
ATTTTTCATAATCCACTGGCTTCCAGTGAGTTTTTTTAGTGTCAAGAAATAATTTTGAT

FIGURE 3Q

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Docket No.: CL001196
Serial No.: 09/820,003
Inventors: MERKULOV, Gennady et al.
Title: ISOLATED HUMAN RAS-LIKE PROTEINS...

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NO:19) TGGTTCATCTTTAAGGAATGTGTTAAGAATAAAGCATGTCTACCTGTCTTCAGTATACCA
GCTAACTATAGTAGGAAGAAATATAGTAGTCTACTTAGATCAACTATAATTCTTTAATGC
AGAAAAAGTTTAAAGTATTTACCTTATTTTAGCCCCATCCCCCTTAAGTATATCATGGC (SEQ ID

8190 AGACCGGCCTGGCCAATGTGGTGAACCCCTGCCTCTACTAAAAACACCAAATTAGCTAGG
CGTGGTGGTGTGCGCTTGTAGTCCCAAGCTACTGAGGAGGCTGAGACAAGAGAATCGCTT
GAATCTGGGAAAAAGAGGTTGCCGTGAGCCAAGATTGGCCACTGCACTCCAGCCTGGGTG
ACAGAGTGAGATTCTGTCTCAAAAAATAAAAAATAAAAAATTTCCCCCTTTAATCAAATT
AAGTTAAATGAGGGATGTTAGACAGTTTTTAACCATCAAATATTTTAGTTTAGTTTTTT
[T, -]
TTTTTAACGTGTCTTAAAGATGGAAGTGCTTCAAAATCAAATCTTCCTTGCCAGTTCTC
TACTTGGCTTCTTTTTTTTTCTTTTTGAGATAGAGTCTCACTTTGTCACTGGAGTGCGTT
GGCGTGATCTCGGCTCACTGCAACCTCCGCCTTCCAGGTTAAGTGATTCTTCCACCTCA
GCCTCTCAAGTAGCTGGGAGTACAGGTGTGTGCCACCACACCCGGCTAATTTTGTAGTT
TTAGTAGAGACAGGGTTTCACTATGTTGGCCAGGCTGGCCTCAAACCTCCTGACCTCGTGA (SEQ ID

NO:20)

8281 CTGAGGAGGCTGAGACAAGAGAATCGCTTGAATCTGGGAAAAAGAGTTGCCGTGAGCCA
AGATTGGCCACTGCACTCCAGCCTGGGTGACAGAGTGAGATTCTGTCTCAAAAAATAAA
AAATAAAATTTCCCCCTTTAATCAAATTAAGTTAAATGAGGGATGTTAGACAGTTTTT
AACCATCAAATATTTTAGTTTAGTTTTTTTTTTTTTAAACGTGTCTTAAAGATGGAAGTGC
TTCAAAAATCAAATCTTCCTTGCCAGTTCTCTACTTGGCTTCTTTTTTTTTCTTTTGAGA
[T, C]
AGAGTCTCACTTTGTCACTGGAGTGCGTTGGCGTGATCTCGGCTCACTGCAACCTCCGCC
TTCCAGGTTTAAAGTATTCTTCCACCTCAGCCTCTCAAGTAGCTGGGAGTACAGGTGTGT
GCCACCACACCCGGCTAATTTTGTAGTTTTAGTAGAGACAGGGTTTCACTATGTTGGCC
AGGCTGGCCTCAAACCTCCTGACCTCGTGATCCACCACCTCAGCCAAATTGCTGGGATTA
CTTGTGTGAGCCACGCGCTGGCTTCTACTTGGCTTTTAAAGGAATTTTGCTTTCTGAG (SEQ ID

NO:21)

11546 GTTACATTTAACCCATTTATGGTCGTGTAGCCATACTCACGTTACATTTGATGCATCTGC
TCCCTTTGTGTCTATATACTCATATAACATTTGCAATAAGTTATAGGCAGTTTACACCA
AGGCTGTTTCAACCTCAGATTAAGAATACTTGATTTAGGAGATTGAAAACAGAAAAGA
GAATGTTAACTATCATTATCAATATTAAATGTGAAAATCTGAGAGTGACAAAGCTTAGC
TTTAAATCTGGTATCCCAAACCTCATTGAGTTTTTTTTTTTTTTTTTTTTTTTGTAGAC
[A, G]
AGGTGTGCTTTGTCCCCAGGCTGGAGTGATGTTGGTGTGATCTTGGCTCACTGCAACCT
CCACCTCCCAGGTTCAAGTATTCTCCTGCCTCAGCCTCTGAAGTTGCTGGGATTACAGG
CTGGCCACCACGCCAGCTAATTTTTTGTATTTATAGTAAAGACGGAGTTTACCTTAT
TGGCCAGGCTGGTCTCAAACCTCCTGATCTTGTGATCTCCGCCTCGGCCTCCCAAAGTG
CTGGGATTACAGGTGTGAGCCACTGTTCCCGCCTAATTTGAGTTTAAATGTGGAGTT (SEQ ID

NO:22)

11670 TGTTTCATGAACCTCAGATTAAGAATACTTGATTTAGGAGATTGAAAACAGAAAAGAGAAT
GTTAACTATCATTATCAATATTAAATGTGAAAATCTGAGAGTGACAAAGCTTAGCTTTA
AATCTGGTATCCCAAACCTCATTGAGTTTTTTTTTTTTTTTTTTTTTTTTTTTGTAGACAAGG
TGTCGCTTTGTCCCCAGGCTGGAGTGATGTTGGTGTGATCTTGGCTCACTGCAACCTCCA
CCTCCCAGGTTCAAGTATTCTCCTGCCTCAGCCTCTGAAGTTGCTGGGATTACAGGCTG
[C, T]
GCCACCACGCCAGCTAATTTTTGTATTTATAGTAAAGACGGAGTTTACCTTATTGGC
CAGGCTGGTCTCAAACCTCCTGATCTTGTGATCCTCCGCCTCGGCCTCCCAAAGTGCTGG
GATTACAGGTGTGAGCCACTGTTCCCGCCTAATTTGAGTTTAAATGTGGAGTTTAAAG
ATGTTAGTCTTAAAGTGGTTAGATGAAATTTATAAAATAGTCAAATAGCTAAATTTAT
AAAAGGCCATTTGAAACAATTTTGTGAAATATATAATGTGGATAATTATGTAGTGCTTTA (SEQ ID

NO:23)

11688 TAAGAATACTTGATTTAGGAGATTGAAAACAGAAAAGAGAATGTTAACTATCATTATCAA
TATTAATAATGTGAAAATCTGAGAGTGACAAAGCTTAGCTTTAAATCTGGTATCCCAAAC
CATTTGAGTTTTTTTTTTTTTTTTTTTTTTTTTTTGTAGACAAGGTGTGCTTTGTCCCCAG

FIGURE 3R



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Title: ISOLATED HUMAN RAS-LIKE PROTEINS...

GCTGGAGTGTAGTGGTGTGATCTTGGCTCACTGCAACCTCCACCTCCAGGTTCAAGTGA
TTCTCCTGCCTCAGCCTCTGAAGTTGCTGGGATTACAGGCTGCGCCACCACGCCAGCTA
[A, G]
TTTTTTGTATTTATAGTAAAGACGGAGTTTACCTTATTGGCCAGGCTGGTCTCAAACCTC
CTGATCTTGTGATCCTCCCGCTCGGCCTCCCAAAGTCTGGGATTACAGGTGTGAGCCA
CTGTTCCCGCCTAATTTGAGTTTTAAAATGTGGAGTTAAGATGTTAGTCTTAAAGTGG
GTTAGATGAAATTTATAAAAATAGTCAAATAGCTAAATTTATAAAGGCCATTGAAACA
ATTTTGTGAAATATATAATGTGGATAATTATGTAGTGCTTTATGTGTAGATTGGTGGTTA

(SEQ ID

NO: 24)

14938

CATGGTAGTGTGCACCTGTAGTCCCAACCACTTGGGAGGCTGAGGTGGGAGGATTGCCTG
AGGCCAGGAGTTGAGACCTGGGCAGCATATGAAGACCCTGTCTCTAAAAAACTAAAAAT
AAAAATAGCCAGGTGTGGTTGGTGTGCTTGTGGTCCAGCTACTCAAGAGGCTGAGGCA
AGAGGTTTGGTGGAGCCAGAAGTTGGAGGCTGCCGTGAACGTGATTGCACCACTGCAC
TTCAGCCTGGGTGACATAGCAAGACCCTGTCTCTGTGGTGGTGGGTGGGGTGGGGG
[A, C]
AGGGATTGAAGAAGGGTTTGTGAGGTATGTATTATTATAAATGGGCTTTTAACTTTACC
CTTCACATCTTGGGTTGAAATTAATTGTATCCATTCTCAGTTTTCTGTCTTGTCTATATA
TTTAAACTTGGAGACTTAGAGGT CATGGATGTCTTTCTATGAAAAGCAAATGAAGCAGAG
GGCTGCCTTCTCTTGTGTAGAGGGCACACTTGTGCAGAGCATGTTACTGTTTATGCA
TTGCTAGGCTTTGGGAGTTGTGACTTGTATGATCATAGTACTTACAACCTATTAGTTGGCA

(SEQ ID

NO: 25)

22261

CACCCACAGATAGCTATGTCAAACGTAAGGGTGGAGAAACACAGACCCCAAACCTTCTCGA
GGGTAGAAAATATGAGGTTATAGTAGATTAGAACTACAAAAGCTAGAGGAAGTTCTGAA
CTGGAAACAGTGGATAGGATTACTAGAATAATTTACGAGGTTGACAATTGTAAATCTTC
ATAGGTTTCTTTTTTCTCTTCTTTTTTTTTTTTGGAGTGGAGTCTCGCTCTGTG
CCCAGGCTGGAGTGCAATGGCGCAGTCTCTCTCACTGCAACCTCCGCCTCTGGGTCCA
[G, A]
GTGATTCTCCTGCCTTAGCCACCCAAGTAGCTGGGATTACAGGCATCTGCCACCATGCTG
AGCTAATTTTTGTATTTTTTTTTTTAGTAGAGACGGGGTTTACCATGTGGTCCAGGCTG
GTCTTGAACCTCTGACCTCAGGTAATCCACCACCTTGGCCTCCCAAAGTGTGGGATTA
CAGGTGTGAGCCACCGCGCCAGCCAAATTTTATTGGTTTCTAACTAGCGTAATTTAG
TTTTTTTCACTTAAGTCAAATATATATTGTAGGATAAAAACTTAGTGATCCAAATTC

(SEQ ID

NO: 26)

22852

ATCCAAATTCATGAGGAATGAAGAATAAATACATTTAAAGTCTTACCATTGCTAAATTA
GTCTTGGCTCTTTGTACCAAATCTGTCTTGTGCTCTGTAAATTTATATTGTATATT
TTCTATCAACATTTTACTGTGTGGTGTGTTTGTAAATATAAAAAAGTCTTAAAGCAAA
TCAGAACAAATGAATCTCACGAATATTCAGTATATTTACAGTTGAGAAATAAACTACTTC
TGTAGTAGGTAATTTAAATGTCCCAATGCAAGTTAACGTGTCACGTGATCAGCTATTCA
[G, A]
GTGTGTGTCTTTGATAAGGGGAGGTGGGAAGTTTGTGGGTTGATTTTATTGCTTTTC
TCATGTGACTGTGTGATGTAGTAAACAAATGGTTTGCAGAGAACCAAGTAGTCTTTTG
CAAAGATTGTCTTATACAGAGCACTCAATCTTCATATTATTTATAATGGCTTTAATTTA
AGCCTTAAATATTAGAACTCATAAATAATTTTTTTATTGTTTTTTTGGAGTGGAGTT
TCGCCCTTATTGTCCAGGCTGAAGTACAATGATGTGATCTTGACTCACTGCAACCTCCGC

(SEQ ID

NO: 27)

27253

GCTTAAGCCATGCATGGGCTTTATAGGAGATGATGCTTCACAGTGAGTTGTTATTGTGA
GCTGTGTTTTTGTGTTTGTATAGCTTATAGCAATGCAGTGTGCTTTTTTAAACATCATT
TTCTTTTCTTTTGTGAGTATTATTATTCAAGTTACTTCTGATTGGCGACTCAGGGGT
TGGAAGTCTTGCTTCTTCTAGGTTTGCAGTAAGTTGAAATGAAATGCTTTACAAT
TAATGGTACAATTAATGCTATGTATGTTTCTAGGTAGATAAAATTAACAGTTTTATTC
[A, C]
GAATAAGTTAATCTTCCAGAAATTTATATATTAAAGACTCCAAATATACATCCCCAGTG
GTATCTTGGACTGTTAAATAGAAAAATATTGTGCTCTTAAAGAAATTCAGTGAAAGTCT
GGTTATAAAGTCAGAAATGCTAATACTTTTGGTCAGAGTCAAACAGCAGTTCCAATATAG
GCAGCAAGTTAAAGGGTAGTTGGTGGCCTGTGTTGAAAGCGACTTGATGAAAATAAATC

FIGURE 3S

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Docket No.: CL001196
Serial No.: 09/820,003
Inventors: MERKULOV, Gennady et al.
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TTTAAATTAACTTTAGTAGAATAAAAAGAAAAGCAGAGCCAGGTGACGCAGTGGATCA (SEQ ID
NO:28)
28098 CTTTAAATTTAGCATGTTTCTGGCCAGGTGCGGTGGCTCACGCCTGTAATCCCAGCACT
TTGGGAGGCCGAGACGGGCGGATCACAAGGTCAAGAGATTGAGACCATCCTGGCTAACAC
GGTGAACCCCGTCTCTACTAAAAATACAAAAATCAGCTGGGTGGTGCCACACGCCT
GTAGTCCCAGCTACTCGGGAGGCTGAGGCAGGAGATCGCTTGAACCCAGGAGCGGAGG
TTGCAGTGAGCTGAGATGGTGCCACTGCACTCCAGCCTGGCAACAGAGCAAGACTGTCTC
[-,A]
AAAAAAAAGAAAAAATAAAAAACAAATTAGCATGTTTCCCTTCTAGAGATCATTGT
TTCTCAGAGCATGGACCAAGACTCCTGGGGTTACCAAGACCCCTCAGGTAGCCCATG
AGGTCAAAATATCCTAATAATACTAAGATGTTAGTATTTGTAAGGAAATATTTACTTGGT
AATAATACTAATAAAAAGATGTTTGGCTTTTTCAGTGATGACATTGGCTCTGGTACAAA
AGCATGTGGGTAAAATTGCTGCTGGCTTGGTACACATCAAGGCAGCGCTAAGCTCCAAAT (SEQ ID
NO:29)
28597 GATGTTTTCGCTTTTTTTCAGTGATGACATTGGCTCTGGTACAAAAGCATGTGGGTAAAATTG
CTGCTGGCTTGGTACACATCAAGGCAGCGCTAAGCTCCAAATTTGTAATCATGGTGATGGC
ATTTCTTACCTCTGTGCCCTCACAGGAACAAAAACAGCCGTGCCATTTTTATTGAAGAT
TGTCCTTGACAAAACAGTTAAAATGATTAAATTTTGAAAAATGTTGATCCATGAGTATTC
CTTTAAAAATATTTGTAAGAAATGGGAAGTTTACATAAAACATGTTTTTTTTTTGTTT
[G,T]
TTTTTTTTTTTTTTTTTGAGACAGATTCTGGCTGTGTTGCCAAGGCTAGAGTGCACTGGC
GTCTGGCTCCCAGGCTCAAGCTGTTCTCCCACTCAGCCTCCCAAGTGGCTGGGACCTCC
CAAGTGGATGCGCCATCATGCCTGGCTGATTTTTGTATTTTTTTGTAGTGACAAGGTCTC
ACTGTGTTGCACAGGCTGGTCTCAAACCTCTGAGCTCAAGCGATGCATGTGCCTCAGCCT
CCCAAAGTCTGGAGAAAGCACTTTTTTACTGCATACTGGCTAGTGTGTTGTTATTTTGG (SEQ ID
NO:30)
31431 CTGCATTTTTTTTTTTTTTTTTTGGTTTGAGATGGAGTCTCGCTCTGTGCGCCAGGCTGGA
GTGCAGTCGTGCAATCTCGGCTCACTGCAGCCTCCACCTCATGGGTTCAAGCGATTCTCC
ATCTTGGTCTCCTGACTAGCTAGGTTTACAGGCGTGTGCCATCACACCCACTAATTTTTT
GTATTTTTAGTAGAGACAGGGTTTACCATGTTGGCCAGGCTGGTCTTGAACCTCCTGATC
TAAAGTGAGCCTCCCACCTTGGCCTCCCAAAGTGCTGGGATTACATATGTGAGCCACTGC
[C,T,G]
CCTGGCCTCTATATACTTCTATAGTACCTGATACTTATTAGGCACTCAATTACAACATAA
CTTTTTTTTTTTTTTTTTTTTTTGGAGACAGAGACATGCCTTGTGCGCTGGGCTGGAGTGC
AGTGGCACAGTCTCGGCTCACTGCAACCTTCACCTCCCGGGTTCAAGTGATTCTCCTTCC
TCAGCCTCCCGGTAGCTGGGATTACAGGCGCCGCCACCACGTCAGCTAATTTTTTGT
ATTTTAAATAGAGATGAGGTTTACCATCTTGGCCAGGCTGATCTCAAACCTCCTGACCTT (SEQ ID
NO:31)
35704 ATGTGTGATCATTGGTGTTTATAAGATTGGGTGTGTATTTCGTGTGTGAAACATTATAT
TTTGTACTTTCTGTGGCTGGAAGGGATCTTATAGGACACTGTCTTTCATCTTTGTCTG
TCTTTCATCTTTAATAGGAATTTCTTTCCATGCCTGAAGGCCTCATTTTGAACATTTTG
TTGTTGTTTTTTTTTATTTTTTGGAGATACAGTATTGCTCTGTCTCCAGGCTGGAGTGCA
GTGGCGGATTGAGCTCACTGCAACCTCCGCTCCTGGGTTCAAGTGATTCTCCTGCCT
[C,T]
AGCCTCCCTAATAGCTGGGATTACATGTGTGTACCACCATGCCCGGACAATTTTTTTTTT
TTTGAGATGGAGCCTTGCTTTGTGCGCCAGGCTGGAGTGCCAGTGGTGCAATCTTGGCTC
GCTGCAGCCTCCGCTCCAGGTTCAAGCAGTCTCTTGCCTCAGCCTCCTGAGTAGCTG
GGATTACAGCGGTGCGCCACCAACCTGCTAATTTTTTGTATTTTTTAGTAGAGACAGAG
TTTACCATGTTGGTTAGGCTGGTCTCGAATCCTGACCTCGTGATCTGCCTGACTCGGC (SEQ ID
NO:32)
35728 GATTTGGGTGTGTATTTCGTGTGTGAAACATTATATTTTGTACTTTCTGTGGCTGGAA
GGGATCTTATAGGACACTGTCTTTCATCTTTGTCTGTCTTTCATCTTTAATAGGAATTC
TTTTCCATGCCTGAAGGCCTCATTTTGAACATTTTGTGTTGTTTTTATTTTTTGA
GATACAGTATTGCTCTGTCTCCAGGCTGGAGTGCACTGGCGGATTGAGCTCACTGCA
ACCTCCGCTCCTGGGTTCAAGTGATTCTCCTGCCTCAGCCTCCCTAATAGCTGGGATTA

FIGURE 3T



Docket No.: CL001196
Serial No.: 09/820,003
Inventors: MERKULOV, Gennady et al.
Title: ISOLATED HUMAN RAS-LIKE PROTEINS...

[C,T]
ATGTGTGTACCACCATGCCCCGACAATTTTTTTTTTTTTTGTGAGATGGAGCCTTGCTTTGTC
GCCCAGGCTGGAGTGGCAGTGGTGAATCTTGGCTCGCTGCAGCCTCCGCTCCAGGTT
CAAGCAGTTCTCTGCTCAGCCTCCTGAGTAGCTGGGATTACAGGCGTGCGCCACCACA
CCCTGCTAATTTTTGTATTTTAGTAGAGACAGAGTTTACCATTGTTGGTTAGGCTGGT
CTCGAACTCTGACCTCGTGATCTGCTGACTCGGCTTCCCAAAGTGCTGGGATTACAGG (SEQ ID
NO:33)
36690 AAAAAAAAAAAAAAGTAACCAGGTGTGGTGGTCCATGCCTGTAGTCTAGCTCCCCAG
GAGACTGAGGTGGGAGGAATGTTTGGAGCCAGGACTTCAAGGCTGCAGTGAGGCAAGATT
GCACCATTGCACCCAGCTTTGGGGACAGAGTGAGAGACCCTGTCTCAAAAAACAAATAA
GGTGCGGCGCAGTGGCTGTCCGGGCGTCTGGTTTACGCTTATAGTCTAGCACTTTGGG
AGGCCAAGTGGGCGAGATTGCCTGAGCTCAGGAGGTCTAAGACCAGCCTGAGCAACATGG
[C,T]
GAAACCTCATCTTTTGCAAAACATACAGAAAAAACAAAAAACCAAAACCTCTAGTT
GCCAGTTATTTTTTTTATTTATTTCTAGTGATTCTTCTTTTTTCTTTTTCTGAGACAA
AAATTTCACTTTGTCTCCCTCGCTAGAGTGCAGCGGTGAGCTCACTACATGATTCTTTTA
GAGACATGTTAATTTCTTTATATTGAGCTGAAGCCTGTTTCTTTTACTTCTGTCTCTTCTT
ATTCTCCGCTTGTAGAGCTGCCTGAATCAGATTAATTCCTCTTTTATTGGCAAGCCTG (SEQ ID
NO:34)
41002 GAGTTGAGGACTAATGTTTCTATATCACATCCTGATAATCTCCACAGTTATGAAAACTAA
ACTATTTCCCTCCCTCCTACACTTTTCCCAACTTTATTTAATGGAATTGTTTGGATT
TCTTGATTGTTTTGTAATAGTGGGACACAGCAGGCCAGGAAAGATTTCGAACAATCACCT
CCAGTTATTACAGAGGAGCCCATGGCATCATAGTTGTGTATGATGTGACAGATCAGGTAA
GTTCCAAGAGGAGATTGTGTACAGTGACCAAGTAGGAAGCCATTATTTGATTAATGTCA
[G,C]
ATTCATTTTACTACTTCATATATAAGCCATCAGTATTAATTTATGGCAGAAAACCTTGTC
CACTCTCAAATATAAATGTGAATCACTTAAAGACATTTGTTTTCTGTAATAAATAAAA
GATTAGTAATTAGTTTTACGTTTGTCTTCAAGGGATTCTGGTTGTATTTATTTGCAACTA
AATAACTTTGATCAAATAGCCAAGACTCTAACATATAGGCAAGAGTTTGTAGGGAATCGT
GAGTTGCTTGGCTTATACTGTGTTCTTGGTGTTAAGTATTAACAGGAATATGGCCTGGTA (SEQ ID
NO:35)
41033 CTGATAATCTCCACAGTTATGAAAACTAAACTATTTCCCTCCCTCCTACACTTTTCCCC
AACTTTATTTAATGGAATTGTTTGGATTCTTGATTGTTTTGTAATAGTGGGACACAGC
AGGCCAGGAAAGATTTCGAACAATCACCTCCAGTTATTACAGAGGAGCCCATGGCATCAT
AGTTGTGTATGATGTGACAGATCAGGTAAGTTCCAAGAGGAGATTGTGTTACAGTGACCA
AGTAGGAAGCCATTATTTGATTAATGTGATTCATTTACTACTTCATATATAAGCCATC
[A,G]
GTATTAATTTTATGGCAGAAAACCTTTGTCCACTCTCAAATATAAATGTGAATCACTTAAA
AGACATTTGTTTTCTGTAATAAATAAAGATTAGTAATTAGTTTTACGTTTGTCTTTCAA
GGGATTCTGGTTGTATTTATTTGCAACTAAATAACTTTGATCAAATAGCCAAGACTCTAA
CATATAGGCAAGAGTTTGTAGGGAATCGTGAGTTGCTTGGCTTATACTGTGTTCTTGGTG
TTAAGTATTAACAGGAATATGGCCTGGTAATTAGAAGTTGTCCATCAGAAATTGCCAAAAG (SEQ ID
NO:36)
43161 AGTCCTTCAATAATGTTAAACAGTGGCTGCAGGAAATAGATCGTTATGCCAGTGAAAATG
TCAACAAATTTGTTGGTAGGGAACAAATGTGATCTGACCACAAAGAAAGTAGTAGACTACA
CAACAGCGAAGGTATGTTTAAAGTTAATTTTCACTGAATTTGAAGGTGTTGAATTAT
GTATGGGTTCTGCAGTAACAGTAAGGCCACAGCCTTTTAAAAATATGTGCACTAGAATAC
TGTGACAGTGACAAATTTGTGTAGCATCTGTTTGGATCCAATGAAGTTAGTTCTCTCAGCT
[C,T]
CATTATGGATGGTAGAAATGCAGTAAGAATTAGTGAAAAAGATTTTTTCACTGTTAATTGT
GCCTCATTATTCTCTTAGGAATTTGCTGATTCCTTGGAATTCGTTTTTGGAAACAGT
GCTAAGAATGCAACGAATGTAGAACAGTCTTTCATGACGATGGCAGCTGAGATTAAGAG
CGAATGGGTCCCGAGCAACAGCTGGTGGTGCTGAGAAGTCCAATGTTAAATTCAGAGC
ACTCCAGTCAAGCAGTCAGGTGGAGGTTGCTGCTAAAAATTGCCTCCATCCTTTTCTCAC (SEQ ID
NO:37)

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FIGURE 3U



Docket No.: CL001196
Serial No.: 09/820,003
Inventors: MERKULOV, Gennady et al.
Title: ISOLATED HUMAN RAS-LIKE PROTEINS...

43765 AATGAATTGCAATCTGAACCCCAAGTGAAAAACAATAATGCCTGAATTGTACTGTATGT
AGCTGCACTACAACAGATTCTTACCGTCTCCACAAAGTCAGAGATTGTAAATGGTCAAT
ACTGACTTTTTTTTATTCCTTGACTCAAGACAGCTAACTTCATTTTCAGAACTGTTTT
AAACCTTTGTGTGCTGGTTTATAAAATAATGTGTGTAATCCTTGTGTGCTTCCCTGATACC
AGACTGTTCCCGTGGTTGGTTAGAATATATTTGTTTTGATGTTTATATTGGCATGTTT
[A, G]
GATGTCAGGTTTAGTCTTCTGAAGATGAAGTTCAGCCATTTTGTATCAAAACAGCACAAGC
AGTGTCTGTCACTTTCCATGCATAAAGTTTAGTGAGATGTTATATGTAAGATCTGATTTG
CTAGTTCTTCCCTGTAGAGTTATAAATGGAAAGATTACACTATCTGATTAATAGTTTCTT
CATACTCTGCATATAAATTTGTGGCTGCAGAAATTGTAATTTGTTGCACACTATGTAACA
AAACAACCTGAAGATATGTTTAATAAATATTGTACTATTGGAAGTAATATCAAACCTGTAT (SEQ ID
NO: 38)

44713 AAGCAGCACCTTTCCTAATTGGCAAATGATCAGACTAATGTGTGCTAATGTTTTCTTCC
ATGCTTTCAGTCAGATTCAACTATTTTATCCTCCACAGTTGCTTAACCTGGTGTGGAGG
AGGGTTTAAGCATTAAAGATAGGAAGCAGGAAATTTGATTGCTCTAAATTTAGAAATTATA
TCCCTAAAAATTAAACATGAATACTGGGTGGTAATGATAATTGAGGCAAATGTATTTAT
TTTGTGTGACATTTGCATATATGAAGATTTTCTGAAATAGGACCTTCAAGATCCTAGGGG
[G, T]
TTTTGTTTGGTTTTTAATTGTGAGGAATAAAAAATCTTCTGCCACACTGGCATTTTAAG
GTGACTGAGGTCAAACGTTGTTTCTTAGGTTGAAATAGCAGCCAAAACATTCTTCACGC
AGGGGCTTGGGATATGGCTGCTGGCAACACATTTTGTGTGGGCTCCTTAATTTAATGAT
AAAATTTAAGCTAAACACAAGCCAAAAATGAATAGGTTTTTTTAATTTTATTTTCACT
AAACAGGCAATTGAAATACATGGTACAAAAATAAGTGGTAAGATAAATTGTAAATGAAAT (SEQ ID
NO: 39)

44831 GGAGGGTTTAAGCATTAAAGATAGGAAGCAGGAAATTTGATTGCTCTAAATTTAGAAATTA
TATCCCTAAAAATTAAACATGAATACTGGGTGGTAATGATAATTGAGGCAAATGTATTT
ATTTTGGTGACATTTTGCATATATGAAGATTTTCTGAAATAGGACCTTCAAGATCCTAGG
GGGTTTTGTTTGGTTTTTAATTGTGAGGAATAAAAAATCTTCTGCCACACTGGCATTTT
AAGGTGACTGAGGTCAAACGTTGTTTCTTAGGTTGAAATAGCAGCCAAAACATTCTTCA
[C, T]
GCAGGGGCTTGGGATATGGCTGCTGGCAACACATTTTGTGTGGGCTCCTTAATTTAATG
ATAAAATTTAAGCTAAACACAAGCCAAAAATGAATAGGTTTTTTTAATTTTATTTTCA
CTAAACAGGCAATTGAAATACATGGTACAAAAATAAGTGGTAAGATAAATTGTAAATGAA
ATGGACAGAATATTCAATTTCCATCTATGAAATTTCACAATAAAAAATCATAGTTTACT
TTGATATTAGGCGTGCTTGGTGGATCTATTTCATCCTCACATAAGGCAACTGACAAATTC (SEQ ID
NO: 40)

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FIGURE 3V